BOARD OF EDUCATION.

12

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ON

EDUCATIONAL SUBJECTS.

VOLUME 9.

EDUCATION IN GERMANY.

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[Introductory Letter to Volume 9 of the Series.]

To Sir G. W. KEKEWICH, K.C.B.,

Secretary of the Board of Education.

SIR,

I HAVE the honour to present to you the accompanying volume of Special Reports on Education in Germany.

The reports deal with recent changes in secondary education for boys in Prussia; with primary education in Prussia and Saxony; with school gardens in Germany; with the German higher schools for girls, and with certain contrasts between secondary education for girls in Germany and in England; with the continuation schools in Berlin; with the growth of the Technical High Schools; with recent developments of higher commercial education; with the methods of measuring mental fatigue which have been adopted by some German students of education; and with the education of feeble-minded children and the care of neglected children in Germany.

I desire to take this opportunity of acknowledging the courtesy with which the various Governments concerned have permitted English students to visit schools and colleges under their jurisdiction, and of thanking the writers of the different papers, and not least, Dr. Bertram, for many years Stadtschulrat of Berlin, for his account of the Continuation Schools in that city.

It should be added that the writers of the various papers included in this volume are alone responsible for the opinions which they express.

I have the honour to be, Sir,

Your obedient Servant,

MICHAEL E. SADLER,

Director of Special Inquiries and Reports.

December, 1901.

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THE UNREST IN SECONDARY EDUCATION. IN GERMANY AND ELSEWHERE.

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The points in which England has dropped behind her rivals in the educational race. Certain advantages which we have retained through not following Continental fashions in education. Changes in many school studies and in the importance to be assigned to the intellectual elements in education are being forced upon us by the action of other nations. Any such change brings with it the risk of losing many traditional elements of great educational value. But reform necessary and urgently required. The full benefit of a large educational reform not completely felt for nearly thirty years. What England has to do is to readjust her educational system, so as not only to meet present conditions in international life, but to equip Englishmen for what is likely to be the greater strain of competition twenty or thirty years hence.

CHAPTER II.

SOME CAUSES OF THE PRESENT UNCERTAINTY IN REGARD TO EDUCATIONAL QUESTIONS.—Closer study of the science and art of education, though it has led to improvements in methods of teaching and in the hygiene of school life, has revealed more clearly than ever the fact that certain fundamental aims (about which there is the utmost divergence of opinion) really govern all educational effort, and even determine in some measure our choice of methods and what is most appropriate in the conditions of school work and discipline. Some of these underlying questions stated. Their extreme complexity and difficulty. For example, what kind of "life" and what form of social order should schools seek, or be required, to prepare different sorts of children and young people for?

Social ideals are implicit in educational controversy. Hence the heat so often generated in discussions about educational arrangements. At times like the present, when economic and other conditions are rapidly changing, people interested in educational reform find it more difficult than ever to put their aspirations into words, and are often hampered by the habit of

using forms of argument which refer to bygone conditions, and no longer fit their real sympathies. But in spite of the difficulty of finding exact expression for educational ideals, the latter are still (possibly as much as ever) in conflict, and the struggle between them, though inarticulate, is none the less severe.

A national system of education involves, implicitly or explicitly, a definite theory as to the right ordering of national life. The establishment of educational unity presupposes general agreement as to national aims, and as to the best form of social organisation. Where two ideals of national organisation and of social welfare are in conflict, and those in sympathy with the one ideal are fairly well balanced by those in sympathy with the other, there tends to be an educational deadlock so far as systematic unification is concerned.

But the State cannot cut the knot by severing its connection with every kind of education. It is committed, and necessarily committed, to bearing part in educational work, because the latter touches essential matters of national welfare, to which the State cannot be indifferent.

The difficulty of educational problems is increased by the fact that "education" is an ambiguous term, signifying various kinds of power which can be applied in contrary directions, and made to produce opposite results. This conflict of educational aims illustrated by the controversy as to rural education.

Again, we cannot simplify the problem by cutting up national education into separate compartments, and dealing with each compartment quite independently. The welfare of each grade of national education depends, directly or indirectly, on the welfare of the rest, and the welfare of the whole system of school and college training depends primarily and continuously on the aims and tone of home life. Yet what may appear at first sight to be the separate fragments of a national system of education are sometimes portions of two quite distinct systems of education, co-existing in the same country, but embodying very different traditions and many different aims. This can be seen in France and in England.

Comparative statistics of educational expenditure are generally incomplete and often misleading, because the grades of education are somewhat differently classified in different countries; because the sources of educational income are very various, and not always completely enumerated; because under the one word "education" are lumped conflicting tendencies and intentionally opposite results; and because there are always doubts as to what kinds of expenditure "national education" should be rightly held to include. No mere school system, however elaborately organised, is really co-extensive with what is meant by national education. But in statistics the two are frequently treated as identical.

Different nations attach special value to different results of secondary education. The German, the American, the French, and the English standpoint summarised. The English and American tendency is to lay much less exclusive stress on the intellectual discipline imparted by school training than is usual with the French and the Germans. The persistence of the English view that education ought to be more concerned with physical and moral training than with intellectual. All three aspects of education must constantly be taken into account together. But it is a condition précedent to all effective education that we should know what we are aiming at, and what kind of character and aptitude we want to produce. The Germans and Americans are, on the whole, very much clearer than the English as to the social aims of education. We oscillate between one theory and another, shrinking from either extreme, but apt to fall into tepid compromise, which misses much that is good in each alternative. This half-heartedness seems to be partly due to a right preference for moderate measures, partly to an instinctive feeling that the best solution of all social and ethical problems involves some union and harmony of apparently opposite truths, partly to an inner deadlock of conflicting social ideals. Its effects are specially noticeable in the sphere of education.

Our hesitation is also due to a just sense of the complexity of the nfluences which really constitute "education." Educational thought all

over the world is taking much more account of social environment in its analysis of the functions of schools in national life. Hence there is much more sympathy with the customary English view of education. But "social environment" includes not merely material conditions of domicile, food, clothing, etc., but spiritual, moral, and intellectual surroundings, and the power of tradition.

Each nation (or, when a people comprises very different types of temperament, each great element in a nation) seems to have woven round itself something like a web of tradition. This is the essential part of national education. An alien system of schools may cut and injure it. Hence, when a nation feels itself in danger of succumbing too readily to foreign influences, or to influences which would weaken what it instinctively feels to be an essential part of its own self-discipline, it readjusts its system of education, often laying special stress on those kinds of training which will fortify it against its special forms of weakness. This national development of education is specially characteristic of the present time, because the extraordinary increase in the number and variety of cheap means of communication has made international and cosmopolitan influences stronger than they ever were before. These influences necessarily affect education. Attempts are made to balance or counteract them by emphasising the national elements in education.

But education has not only to concern itself with environment. Its work is complicated by differences in inherited power. But in any case the development of this or that out of many inherited aptitudes, and the degree of encouragement given to particular kinds of ability, depend in large measure on environment—if the latter word be used in its widest sense.

In consequence of the complexity of educational problems, some people seem inclined to give up all hopes of comprehensive improvement, and to argue that we should at all costs keep whatever we have got of tested excellence in education, jealously guarding it from outside interference, preserving it rather than trying to extend it, disregarding apparent waste in the process, provided that a few first-rate minds are produced by it. This view finds increasing support among those who believe that the tendency of great systems of state-organised education is to promote the interests of the average boy rather than to develop and encourage exceptional ability. But so closely intertwined are the various parts of national life and education that it is impossible to keep any section really ntact from new and disintegrating influences. Mere exclusiveness in education is not a practicable remedy.

Therefore we are compelled to face the question what we want our various grades of schools to accomplish, and what, with a view to fulfilling their part of the common task, secondary schools ought to teach. Some of the various and conflicting opinions which have been advanced on this subject. They indicate deep-seated unrest, and must be regarded as danger signals. Little likelihood of any sudden or complete break in the older educational tradition. Much latent wisdom in many courses of discipline and methods of teaching which may be momentarily unpopular. But there seems to be a growing dislike of many of the old traditions. The discussion tends more and more to turn on the effect of education on conduct and character. This raises ethical considerations as well as intellectual. English schools have paid more attention to the first, Continental schools to the latter. Each has much to learn from the other in seeking the proper mean.

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"Education is one of the greatest and hardest tasks which it lies on each generation of human society to fulfil. So great, so difficult, so full of unexplored and unknown conditions, and opposite and apparently contradictory requirements, that human thought and wisdom are not wide enough to take in the whole field it presents to them, they stand perplexed and baffled before many of its important problems. . . . . We come more and more to see how in all its parts it must be a combination of authority and liberty; how essential it is that, with discipline and control, there should also be frank confidence and trust; how teacher and scholar act and react on one another; how much the scholar has to give and teach; how greatly he must be induced to contribute to his own education, if it is to be a successful one. . . . . Education only fulfils half its office, it works with a maimed and distorted idea, unless it deals with character as well as with intellect; unless, again, it opens and enlightens the mind as well as directs, and purifies, and fortifies the will."—DEAN CHURCH. *Pascal and Other Sermons*, pp. 217–218.

THE UNREST IN SECONDARY EDUCATION IN GERMANY AND ELSEWHERE.

Introductory Note.

In the Autumn of 1900, the Board of Education charged me with the duty of visiting the Paris Exhibition with a view to preparing a report on its educational section. A study of the Exhibition convinced me that it would be misleading to treat the section specifically assigned to "Education," as if it were a separate thing by itself. The far-reaching significance of much that was shown in the educational section only became apparent when the industrial and other departments were studied. It is natural that this should have been so, because education is not a thing by itself, but one aspect of national life and one of many closely-related expressions of national energy and intention. Moreover, at Paris, the educational section was rendered seriously incomplete by the absence (never fully explained) of a German exhibit. But the results of German education were remarkably conspicuous in other parts of the Exhibition. Again, much that was of great importance to the student of educational work was shown elsewhere than in the educational section. Much was shown in the department of social economy; much in the pavilion of the Municipality of Paris; much (and that, too, of educational effort ill-represented elsewhere) in the pavilion of Catholic Missions; much in the galleries of painting and sculpture, and of historic art. Of course, the most essential parts of an educational system cannot be put into packing-cases and sent off to an exhibition. But it is surprising how much can be done by means of such an exhibition (especially if it is interpreted to visitors by men who are thoroughly competent to explain, and to comment on, what is shown), to enable a student to get a vivid idea of what is going on in the very different types of schools and institutions which make up a national "system of education." It would, however, be a mistake to regard the so-called "educational section" of any exhibition as being in itself a sufficient indication of the aim and spirit, or even of the methods, of the educational systems of the nations exhibiting. Nor is any one man competent to do justice to all that was shown at Paris, even by anyone country. Still less is he competent to point out the significance of the omissions in each exhibit. Yet this is in some respects the most important task of all. Instead, therefore, of myself preparing a detailed report on what was actually shown in the educational section strictly so called (where, I may say in passing, the three most interesting and comprehensive exhibits were the French, the British, and that of the United States of America), I have felt it better to prepare with the help of many others a series of volumes of Special Reports dealing in succession with those branches of educational effort which were most conspicuously important at the Paris Exhibition. One of those volumes deals with Primary Education, chiefly rural education, in France; another deals with aspects of education in

the United States of America; another, which is supplementary to two volumes on Colonial Education already issued in this series, deals chiefly with the education of native races; another with the teaching of domestic science; another with education in Scandinavia, Holland, Hungary, etc.; another with education in Russia and Japan; while the present volume treats of education in Germany, with special reference to the points of contrast between German education and our own. It will be noticed that not all the papers in these volumes have been written with special reference to what was shown at Paris. But those which were prepared otherwise fall conveniently into the general scheme.

Educational opinion, all over the world, is in rather a feverish state, and in the following pages I have attempted to discuss the causes of the unrest in secondary education which is noticeable in Germany, in France, and in the United States of America, as well as in England. It has not been my duty to formulate any administrative proposals, but rather to examine, as dispassionately as possible, the issues which must underlie, here and elsewhere, the sphere of administrative effort. My aim has been to set out, as fairly as I could, a statement of the difficulties which are raised at the present time by the problem of secondary education in Germany, France, and America, as well as elsewhere. Though I have not shrunk from indicating some of my own conclusions, I have tried so to put both sides of the question that every reader may form his own judgment from the facts before him, although that judgment may well differ from my own. The complexity of the problem is so great, many of the factors in it are so mysterious and incalculable, that anything like dogmatism would be wholly out of place. The questions really at issue are of a kind which specially need patient study and sympathetic investigation. And such study is none the less businesslike and practical in its ultimate results for proceeding slowly and trying to get to the bottom of things, comparing what is taking place in one country with what has taken place in another, and reviewing educational systems in the light of their historical development.

Several friends have greatly helped me by reading this paper in proof, and I wish to make grateful acknowledgment of their kindness, though by mentioning their names I do not at all mean to imply that they necessarily agree with the views which are expressed in the following pages. My thanks are especially due to the Dean of Christ Church, Mr. George Saunders, Mr. Spenser Wilkinson, Dr. R. P. Scott, Mr. P. J. Hartog, and Mr. J. A. Crawley, and to my colleagues Miss Beard, the Hon. W. N. Bruce, Mr. H. W. Orange, and Mr. A. E. Twentyman. When visiting the Paris Exhibition I learnt much, and saw many things which I might otherwise have missed, through the kindness of my friend Mr. Fabian Ware, but his absence in South Africa, where he is helping to organise the educational system of the new colonies, has prevented me from having the benefit of his criticisms on this paper.

CHAPTER I.

In what is written about education at the present time there is a curious eddy of opinion. People in general seem to believe in education more than they ever believed before. At any rate, they profess their belief in it more copiously than they used to do. On the other hand, many of those who believe most strongly in the power of education are beginning to utter almost revolutionary criticisms of the kind of teaching which schools generally provide. Thus there are bewildering cross-currents in educational opinion. Disputes about forms of educational administration are, after all, but of secondary importance. The real questions at issue are what ought schools to aim at producing, and for what kind of social order in the future ought they to prepare the rising generation. It is on these points that the controversy really turns, and the strong feeling engendered by debates on the composition and powers of various local authorities arises from an often inarticulate instinct that certain kinds of authorities are more likely than others to be in sympathy with certain tendencies in educational effort. There is a very general feeling that we need much better education, and a great deal more of it. But there is very far from being general agreement as to what such "better education" ought to consist of. On this point, indeed, divisions of opinion seem to grow deeper year by year. Educational reformers are more and more divided among themselves. And, for the time at least, whatever is of tested excellence in the older methods of education is coming rapidly into favour again.

But on one subject, at all events, there might appear, at first sight, to be a fairly general agreement. No one seems to dispute the view that, in some way or other, education has a good deal to do with success in trade. Yet, here again, when we get below the surface, we find great divergence of opinion. People who study the question are not really agreed as to the part which schools or colleges can play in preparing boys or young men for business. There is an almost infinite variety in the forms of industrial and commercial life. And in each form there are many grades in the business hierarchy, and different boys start at different points in the ladder. How many kinds of "commercial education," it is pertinently asked, will be required if it is proposed to prepare practically for all these grades and types of business life? Again, experienced business men are far from being agreed as to whether, apart from the above-mentioned differences, there is any common measure of commercial education which could be generally prescribed by way of preparation for every kind of business life. Some lay more stress than others on social qualifications, others on moral, others on physical, while nearly all regard general alertness of mind and habits of intellectual concentration and perseverance as of

much more importance than the early acquisition of fragments of commercial information. Still less is there any agreement on the more fundamental questions as to the kind of men which our schools ought to aim at turning out; whether in the long run it would increase a nation's happiness and prosperity, not to speak of its moral worth, if its schools made it their chief aim to produce keen bargainers, men with a sharp eye to their own pecuniary advantage; and whether there is at bottom, in individual character and national life, (and, therefore, in the schools which have to shape the one for the other), a necessary conflict between what is public-spirited and what is purely self-seeking.

Nevertheless, in all those countries which take, or wish to take, an active part in modern enterprise and international affairs, there has never been so deep an interest shown in education as there is to-day. All over the world, educational questions are fast coming to the front. In France, Germany, and Russia, in Norway and Sweden, in Holland and Belgium, in Austria-Hungary and Switzerland, in Canada, Australia, and New Zealand, in the United Kingdom and the United States of America, in Japan, and even in China, educational problems are demanding an ever-increasing share of national thought. In some countries the problem is much simpler than it is in others. Some nations, for good as well as for evil, are more sensitive to the claims of tradition. Some have more reason than others to be grateful to those who have represented the older educational tradition in their midst. Some nations have a tendency to fly from one extreme to another; others, to jog along in a middle way. Some are in the habit of identifying "education" with what is taught in schools, and, therefore, of regarding a tidily organised school system as necessarily the most fruitful kind of national education. Others have preserved a healthier sense of the truth that education is but one aspect of life, and, therefore, as varied and as long as life itself, with the result that some of their children get a very much better education than others, and that, in the community taken as a whole, the average of intellectual attainments is low. Some nations have a far more complex task before them than others, and, therefore, feel the need for a greater variety of schools, perpetuating great varieties of interest, temperament, and character. Some peoples are much more homogeneous than others in their national aim and in their outlook on life. The more homogeneous the ideals of a people, the more naturally homogeneous is its system of schools. Sometimes, perhaps from an instinctive distrust of its own excessive individualism, a nation has got a sort of artificial unity into its education by screwing down on itself a tightly-riveted system of State control. In such cases educational arrangements seem, at first sight to have a finality which closer inspection may show to be threatened by the accumulation of many explosive forces within. As contrasted with this, many of the educational contrivances of our own country look like a forest of safety-valves, without any

proper means of storing up the driving-power which the machinery needs. All these differences press themselves on the attention of the student of national systems of education. But at the present time he is no less struck by the fact that everywhere there is debate as to what it is that really constitutes efficiency in schools. What are really at issue are the fundamental questions of educational aim and motive, which are often taken for granted as if they had been settled for good and all. Everywhere educational opinion shows signs of almost feverish unrest. Everywhere there is a sense of impending change. Everywhere experiments are being tried in the hope of finding some better adjustment of school and college training to the needs of modern life. But in no country, not even in Ireland, is the problem so intricate as it is in England. The problem is far simpler in Wales and in Scotland than here. The traditions which help us, hamper us too. So far as her educational arrangements go, England is not "built as a city that is at unity in itself." The variety of interest, outlook, and ideals which has enriched our literature and diversified our national life embarrasses us when we come to consider the possibility of providing common schools for the convenient use of any given locality. We are united in our desire to maintain our variety; but we are far from being united in wishing to impose on ourselves any common form of intellectual or moral discipline. For centuries we English have been two nations rather than one. At all great crises in the intellectual development of Europe we have been conscious of our inner divisions, and have been strongest when we have agreed to differ. When either side has striven to impose on the other any kind of uniformity, whether in belief, or in matters (like education) which necessarily touch the nerves of belief, the result has been stubborn conflict, and either schism or compromise. Education is a process of training which, whatever we leave out of the curriculum, touches both heart and mind, and rarely leaves either as it was before. How, therefore, are we ever likely to be unanimous about education, seeing that we are divided, at heart as well as in mind, in our ideals of what is most desirable in individual character, in social organisation, and in national endeavour. These divisions, possibly racial in origin, are all the more difficult to eradicate because they are so largely unconscious. They are matters of instinct, often lying far below the reach of mere argument. Our latent divisions show themselves in the form which our educational arrangements have been compelled to take. Our school system, in its lack both of formal and of inner unity, is one expression of the lack of real intellectual unity in our national life. It is the effect of that lack of unity, and in turn yet another cause of it.

It is no accident that, compared with her rivals in the world, England is the most backward in her systematic provision of national education. Indifference and neglect, much as we have suffered from both, do not alone account for what is lacking in our national system of instruction. Individual and corporate effort have never

been lacking, and in no country has there been a longer record of disinterested liberality on behalf of schools. It is not the result of national inability to educate. On the contrary, nearly every student of education would admit that some English schools, both for boys and for girls, are the finest schools in the world. It is not the result of national incompetence to think about education in an intelligent way. On the contrary, out of the small number of men whose writings during the last four centuries have profoundly influenced ideas of education, nearly a half have been Englishmen. Other nations have hatched eggs taken from English nests. Why is it, then, that England is so backward in her systematic provision of national education? It is not because such systematic provision has never been proposed. On the contrary, ever since the Reformation each side in turn has tried from time to time to establish in England the kind of systematic organisation which it preferred. But the attempt has always failed, and has resulted either in a dual organisation or in nothing being done by the State at all. This inner conflict of ideals is probably less intense now than it used to be in the past, but it has not disappeared, though at present many people find a difficulty in giving articulate expression to what they instinctively feel on the subject. The conditions of the problem have changed, and many of the old formulas do not fit the new situation. But the instinctive divergence of choice is still there. In some cases, people may have drifted unawares into a position which is not really theirs. But, as they come to realise what the issue is on which they have to make up their minds, they will quickly take their side, even if it means changing their present moorings.

Education, at first sight, seems the simplest way of uniting a nation. But it only succeeds in uniting those who are already ripe for union. When a nation is deeply divided on fundamental questions, attempts to eradicate such divisions by plans of educational organisation tend to set up irritation rather than to encourage unity.

This, it would appear, is the situation which we have to face in England. In three points we have dropped far behind in the educational struggle. (1) We have a very insufficient provision of first-rate intellectual instruction in cheap and easily accessible secondary day-schools, and much of the intellectual work prescribed to boys at the great public schools seems out of gear with the needs of the times.* (2) We have also a very insufficient provision of the highest kinds of technical, scientific and professional training, deliberately and skilfully adjusted to the most recent needs of modern life, or to what are likely to become urgent needs within the lifetime of the rising generation. In these affairs (for example, in the professional

* In the course of the following pages I have ventured frankly to express my opinion as to certain reforms which, in my judgment, have become desirable in the great English public schools. In doing so I am well aware that I lay myself open to the charge of presumption, if not of impertinence. But I am deeply convinced that, in many of the fundamental things which lie at the base of a manly education, the best

training of teachers for secondary schools of the older English type) we seem half to pride ourselves on our not taking time by the forelock, on "letting sleeping dogs lie," on "not doing things too soon," and on not being "viewy"—expressions which are sometimes used to excuse unwillingness to look ahead, and failure to make practical provision for getting the best advantage out of a probable future. (3) In the third place (and this matters most of all), through our comparative neglect of national education for the better part of a century, we have in some respects a less enlightened public opinion to appeal to than have some of our rivals. As a nation, we are much less intelligently interested than the Germans in methods of instruction, in the choice of curricula, and in the direct application of the results of scientific study to the organisation of industry, to the development of commerce, and to the administration of public affairs.

It is true that hardly any change in French or German education has not found some one to advocate its imitation here. But, as a rule, we have been sturdily insular in our educational views, and far less imitative of the Continental countries than they have been of us. Insularity is much better than indiscriminate imitation (though one excess is apt to be followed by the other), but insularity is mischievous, when it prevents people from giving intelligent attention to the development of affairs in the world. We have lost a good deal by our excessive insularity, because we have failed to take practical heed of certain tendencies of which it would have been useful for us to have had timely knowledge.

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traditions of our great English schools are beyond comparison the most valuable things existing in secondary education anywhere in the world, and therefore that it behoves all who are conscious of grave, but remediable, defects in the work of those schools to urge the need for reform. But, in doing this, I well know that I am far from being one of those who are best qualified to speak on such a subject, and that many other students of education would probably form a very different judgment on the points at issue. Yet the position, from a national point of view, seems to me so critical, and the lack of any strong intellectual leading from the public schools so grave a loss, that I feel it right to submit a number of criticisms to the reader, in the hope that they may at least serve as a starting-point for more exhaustive inquiry. So various, however, are the conditions prevailing in different secondary schools in England, so different are the interests which may flourish side by side in a single school, and so incessant is the process of unrecorded change, that no one can confidently generalise on the whole situation. But I believe that (if many brilliant exceptions are allowed for) the public schools are not at present doing so much as might be done for the intellectual development of the ordinary boy. I should have more hesitation in saying this if I thought that the fault lay primarily or chiefly with the schoolmasters. On the contrary, the blame lies chiefly with the parents; and it is from the parents that the effective demand for reform must come. Hence the need for public discussion—a discussion among those who are at once personally under permanent obligation to the great schools, and intensely proud of them as English institutions. When the demand comes from the parents, the schools will adjust themselves to it. But the demand may come too late. In the meantime the great schools might do much to guide educational reform. Their position is so assured that they might venture to do more than they have lately done in the way of leading opinion and of embarking on many important experiments in regard to school studies. Dr. Arnold led opinion, did not wait for it.

For example, in the sphere of education we have lost some very precious years through not having remodelled our methods of modern language teaching at the time when the Germans and some other nations were introducing their important reforms in this branch of instruction. Isolated or individual warnings are not enough. The nation itself must be ready to hear, or individual warnings are unheard or unheeded. As a matter of fact, Englishmen and Englishwomen played an important part in this very movement for the improvement of modern language teaching. Many others have warned their countrymen of the significance of this new development of education abroad. But, for such warnings to be effective, the general opinion of the nation must have been worked up to a certain point of preparedness to receive and understand the warning. This state of preparedness is the result of a long process of previous training. One great reason for having, throughout the whole body of the nation, a really effective and searching system of educational discipline is that in this way, and in this way only, can there be formed a national habit of intelligent observation of the course of events, and a constant readiness to overhaul existing arrangements with a view to their being readjusted to the new conditions brought about by the advance of science.

On the other hand, we enjoy certain advantages through not having too quickly followed Continental fashions in education. So far as our best schools go, we have preserved and developed the tradition of a certain "great style" of our own, and foreigners are beginning more and more to appreciate the merits of what we have retained, though they are less blind than we are to its defects. Just as a keen sense of literary style is the characteristic and most precious tradition of French higher secondary education, so is what we know as "the public school spirit," the most characteristic thing in the corresponding part of English training. Neither the Germans nor the Americans, still less the Swiss or the Scandinavians, have any such really native and special mark in their higher secondary schools. It would be a great loss to the world if either the French or the English schools lost their characteristic excellence; but just as the French Lycée needs more of corporate life and more of the all-round physical and moral training which is got through games, personal freedom, and responsibility for discipline, so the English public school needs a much higher average of intellectual interest and great improvement in many of its methods of instruction. Each has the defects of its qualities, and might learn much from the other.

Again, we have paid much more practical attention to the place of outdoor sports and games in education than have either Germans or Frenchmen. In other words, our formula of "education" is really a much wider one than theirs, and far less intensely literary or intellectual. Connected with this is the English habit of sending large numbers of boys and girls (especially in the middle and higher ranks of society) to boarding-

schools, where the influences and interest of corporate life and the intimate companionship with others of the same generation are generally thought much more important than are the purely intellectual studies of the place.

We have never made an idol of intellectual instruction imparted in day-schools. In other words, our great educators have upheld the belief, (though we are far from having consistently lived up to all that the belief implies), that a school ought to be something higher than a knowledge factory; that what a man *is* matters a great deal more than what he *knows;* that wise action involves many vital elements besides intellectual attainment; and that education, in the true sense of the word, is an atmosphere and a discipline affecting heart and mind and body, and neglecting none of the three.

Furthermore, we have kept ourselves free from those restraints on educational developments which State control of any effective kind necessarily imposes. Our secondary and higher education has, on the whole, had very little tight-lacing to complain of, though our primary education suffered grievously from it for years, and has not yet recovered from the ill effects produced by it. We English have always believed that some of the highest kinds of learning are not necessarily printed in books, but may be embodied in institutions, and that some of the noblest combinations of intellectual and spiritual power seek to revive, inspire or create some form of corporate life. What Thring did at Uppingham; what Miss Buss did in North London; what, in a different sense, Dr. Arnold did at Rugby; what Miss Clough did at Newnham; what others still living have done for other institutions in our midst—this creative work, in which a great personality pours itself out into an institution, and inspires it with a new or with an intenser and wider life, is possible under the free conditions of educational development here and in our Colonies and in the United States of America, but is comparatively rare under the tighter organisation of the State Schools in France and of the Higher Schools in Germany. Our English higher secondary schools are in reality far less an organised system than a loosely-knit federation of free institutions, free to do very much or to do very little. Our conditions produce strongly-marked differences in tone and character among schools which really belong to exactly the same grade in national education. Thus our secondary schools (and the same thing can now be seen in parts of our primary education) naturally adjust themselves to rather subtly-differentiated preferences on the part of parents. And the fact that the differences exist in the schools tends to make the various preferences persist. Connected with this is the very strong and loyal affection felt by so large a proportion of "old boys" for so many of our secondary schools. There seems hardly anything to compare with this in the State secondary school system of France, or at the present day among the public Higher Schools in Germany. The system which raises the average level of intellectual attainment also tends to

obliterate many of the marks which would otherwise distinguish school from school, and round which the loyal recollections of "old boys" are apt to gather. In the sphere of primary education, the centralising tendencies of many local authorities (not to speak of the influences of the system of "payment by results" now abolished) long delayed the growth of that individuality among schools which is now happily showing itself in all directions.

No schoolmasters in the world lavish more time and thought and strength on the care of their pupils than the English secondary schoolmasters. On what may be called the pastoral side of their office, they are beyond rivalry. And their old pupils never think of their names without affection and gratitude. But because the English secondary schoolmaster so often lives among his pupils from morning to night, he has far less time and strength to spare for professional studies than has his Continental counterpart. He is much more the friend of his pupils, and much fresher in his sympathies with the interests of young people. But he is far less of a student; as a rule, is much less learned; and is often a hardened amateur in his method of teaching.

The general result of the freedom enjoyed by our secondary and higher education is that (whatever be its merits or defects) our system seems to be more naturally and thoroughly congenial *to the majority of the people immediately concerned in it* than are the corresponding systems in France or Germany. But whether our great schools are turning out boys of the kind of aptitude and trained intellectual interest which the present times require, is another question. It is to be feared that in far too large a number of cases our secondary schools for boys fail to make *intellectually* as much as should be made, and could be made, of the excellent material on which they have to work. In order that courage and devotion may not be wasted, we need far more alert intelligence, far more insight into the significance of social and international problems, and much more knowledge of what is really going on in the world outside that somewhat limited area of English life from which the greater part of our public-school boys are drawn. Unless this change come quickly, it is to be feared that the intellectual lead will pass from the great public schools to another type of school altogether, a transference which would involve a breach in tradition certain to be hurtful to much that is most excellent in English life. But if the intellectual side of our English public-school life is to be strengthened, the reform will involve great changes in the present disposition of many schoolmasters' time. They will have less time for games, because they will have to give more time to study and to the actual preparation of lessons. In order that the change may not injure the present excellent relations between masters and boys (relations which are quite beyond comparison the pleasantest which exist in any secondary school system in the world), there

will be need for an increase in the number of masters, for a considerable reduction in the size of many of the "forms," for much more (and often for a different kind of) instruction in modern languages, in modern literature, in history and in geography, and for a much more systematic attention to methods of teaching. What is wanted is, not "mere prattle, without practice," but practice enlightened by scientific study of the aims and methods of teaching. Clumsy, antiquated methods of instruction are far too common in our secondary schools. If our public schoolmasters once seriously take up the question how to make English methods of teaching the best in the world, it will probably be surprising how much of the old tradition will be quickly discarded as obsolete, and how much time and strength it will be found possible to save without sacrificing discipline to intellectual interest or interest to discipline.

It may be asked what need is there to make these reforms. "Are not people satisfied with what the public schools are doing? Have the public schools ever been so prosperous, or ever so eagerly sought after? Why should anything be done to alter arrangements which seem so satisfactory to all concerned?" The answer to this is that our great competitors in Germany and America have forced the pace.

The Germans have succeeded in getting a much larger proportion of their people to go through an advanced course of instruction than is the case in England. They are working up the instruments of non-classical secondary education to a high point of excellence and precision. They have managed to inculcate scientific habits of mind and a disposition towards intellectual organisation and co-operation to a degree quite unparalleled here. They have overcome, by various means, the excessive individualism which baffles efforts at timely combination. They have induced the generality of the nation to trust to the wisdom and forethought of the State, and to submit to present discipline and sacrifice in the confident hope of future gain. They have skilfully applied education as an instrument in furthering their commercial and industrial interests. Whether their type of national organisation will in the end prove to be the most enduring and the most capable of necessary self-adjustment to new needs as they arise, are important questions which certainly admit of answers not wholly favourable to recent developments. But the fact remains that our hands are forced. We cannot afford to ignore what our competitors have done, and the immense strides which they have recently made in the commercial race. We cannot shut our eyes to the extraordinary skill with which they are harnessing education in the service of business and of the other tasks of modern life. We shall find ourselves virtually compelled by their action to replace much of our old educational machinery by something which works more economically and turns out a more modern fabric. The danger is lest, in doing this, we should destroy what is of infinitely more value to the nation in the long run than would be the most successful manufacture of specialists in money-making and of experts in

the art of pushing cheap and taking wares. What is needed is to keep the best of the old tradition and to weave into it quite a modernised curriculum. But, though there will be differences of opinion as to the risks involved in any change, few will deny that searching and radical reforms and extensions are needed all through our secondary and higher education, both in their general and in their technical departments. And it should not be forgotten that it takes between twenty and thirty years to get the advantage (or to measure the real results) of any great educational change. It is only when the influence of the pupils trained under the new conditions has filtered through the whole mass of public opinion and of national life that the effect of the changes is fully perceived. There is indeed no time to be lost. We could not, even if we wished to do so, reform all our secondary education at a year's notice. Any such wholesale change would be prevented by three considerations: by the regard rightly paid to the legitimate claims of many excellent teachers whose skill is confined to the older subjects of instruction; by the uncertainty as to what should be aimed at by the different kinds of secondary schools; and by the unpreparedness of public and professional opinion to submit to all that is really involved in the classification of schools according to their intellectual and social aim, not to speak of their curriculum. But already, so to speak, the wolf is at the door. We have to face the fact that it will take us, under the best conditions, between twenty and thirty years, at a moderate computation to remodel our secondary and higher education, and to put ourselves (so far as instruction is concerned) on a level with the Germans. During that period Germany herself is not likely to be idle. We have therefore to look ahead over a period of nearly thirty years and try to judge what is likely to be the condition of the world's industry and commerce at that time, when Germany and America (not to mention other countries) have been enjoying for the whole of a generation more the results, good and bad, of their very different educational systems. For those who regard the welfare of this country as depending wholly on our retaining a predominant place in the world's commerce, this may seem a gloomy prospect. Happily the highest influence of a nation depends far more on its possessing intense spiritual and intellectual force than on its material wealth or on the supremacy of its commerce. But no Englishman would willingly see thrown away for lack of courage or of forethought the immense opportunities that are afforded to us by the present vast extension of our industry and foreign trade. Yet what is really threatened by our present backwardness and intellectual inertia is the power to exercise wisely and effectively for good those forces which Providence has placed in our hands. Never had any nation so great an opportunity; and yet how slowly we seem to grasp the use that might be made of it—alike for the bettering of social conditions at home and for the building up of a stable fabric of Imperial institutions. Were it not that the future conceals within itself so many incalculable elements, the outlook would be black indeed.

CHAPTER II.

Some Causes of the Present Uncertainty in regard to Educational Questions.

At no earlier time has so much careful thought been given to the science and art of education as during the last thirty years. This closer study has led to what at first sight is a paradoxical result. Some might expect the labour which has been lavished on the subject to have led to a final settlement of all the most important questions touching the training of the young. But this is exactly what has not taken place. The fundamental points have not been settled. Various lines of study (not only educational) have led people back, stage by stage, to the fundamentals, and there they stand at present, realising as they never did before how difficult it is to form a judgment on the underlying questions which really govern all the rest, but which are often more or less taken for granted, or slurred over, or regarded as being settled by tradition. In short, the educational researches of the last twenty years may be said to have cleared roads through a jungle of subsidiary questions, matted and tangled with tradition, back to the great fundamental issues, which can now be seen more clearly than ever before. And that the new problems, which are thus beginning to be discussed, are really fundamental is probably one reason why there has been such an extraordinary growth of public interest in education all over the world. It is true that, as to the value and nature of certain methods of teaching, most people are clearer than they were: they do not all agree by any means, but they know much more definitely wherein they differ. And much light has been thrown on the variety of things which have to be taken into account in forming a judgment about what may be called the hygiene of education. Here again people are by no means agreed, but they are much clearer as to the scope of the question, and, as a rule, much more willing to recognise the need for different solutions of the same kind of difficulty according to differences in circumstance. But both the methods of teaching, and many of the conditions under which teaching is best carried on, are really governed by the aim of the course of education of which they form a part. They are instruments to an end. On the nature of that end will necessarily depend much of their value as instruments. An English merchant or diplomatist visiting Germany to-day would not find Latin the most convenient means of communicating his ideas on public questions. Once things were otherwise, and the power of speaking Latin was much more practically useful to all European travellers than (except, perhaps, to some Roman Catholic scholars and administrators) it is to any one at the present time. Hence the dominant place of Latin in the early stages of higher education is now threatened on all sides. It has to be defended, by those who wish to retain it in its present position, by arguments very different from those in vogue in the sixteenth and early

seventeenth centuries, not to speak of the times before the Reformation and the great break-up of the European culture of the Middle Ages. How Latin should be taught, or when it should be taught, are questions which really turn on the underlying questions why Latin should be taught at all, and whether there is need or room for it in modern education. Again, even questions of school hygiene are largely dependent on the underlying aim of the course of education in question. For example, many people feel that a country place is the best seat for a school for growing boys and girls, in order that they may have purer air, more space for games, closer companionship with nature, and more freedom from the nervous strain caused by the sights and sounds of city life. But no one would propose to educate young sailors in an inland village; nor would it be possible, even if it were otherwise desirable, to remove *all* city children from their home surroundings during their school life in order to give them the benefits of an education in the country.

Thus, all over the world, wherever education is being seriously studied, the fundamental issues are being raised. At first sight they may seem simple, and only capable of one kind of solution. But, on closer analysis, they turn out to be extraordinarily difficult. Every kind of education, like every kind of manufacture, must have an aim. What, for example, does a "secondary" school aim at, as distinguished from a "public elementary" school? For what kind of life do you purpose to educate this boy or that? And are girls to be educated for the same kind of life as boys? Are you going to educate all children alike, whatever the position of their parents, and whatever their own probable occupation in later life? If the answer be Yes, how long is such a common education to extend? How much will it cost the local community or the central State? Who shall decide what the "common course" is to be? Must everyone alike contribute to the cost of it? Will you allow parents, if they so prefer, to bring up their children outside it? If so, at the parents' own expense? And what control should the State exercise over the course of studies in such outside institutions, and over the spirit and temper of their management? Above all, for what kind of social order do you propose to prepare the children? This is the most fundamental and necessary question of all, and, it must be added, exactly the question upon which the central mass of moderate people seem to have least made up their mind.

It is often said that schools should prepare boys and girls for life. People have said so for generations, but often without much effect. One thing, at any rate, is clear, that it cannot be done except at great expense—expense, that is, not merely in point of money but in point of thought, of sympathy and of personal devotion. Any true preparation of boys and girls for the moral and intellectual duties of citizenship and for the practical duties of life would involve the very best of teaching, a long course of education, costly and varied equipment, very small classes, large staffs of teachers, great variety of schools, and, above all, unsparing self-devotion on the part of parents as well as teachers. The fact is that it is easy enough to say that schools should

prepare young people for life, but it is a much more difficult thing to explain how it is to be done. But much the most difficult thing of all is to decide what the "life" is to be.

These difficulties are implicit in educational questions. The reason why the latter nearly always generate so much heat in discussion is that they involve social and moral ideals. The latter are usually in process of change, but the rate at which such change is going on varies from generation to generation, or even from decade to decade. Some people, of course, are unconscious of the process, but it is none the less actually proceeding in their minds. Few could adequately express *in words* what they are striving after, or why they are really departing from their former ideals. And at some periods it is more difficult than at others to give verbal expression to this shifting outlook, and to this change in social and moral aspirations. The spiritual movement seems to precede the intellectual analysis, and, therefore, the verbal expression, of it. But, though the matters at issue are thus in point of verbal form undefined, the reality of the conflict is there. People feel it, though they are inarticulate. The fact that we are inarticulate often makes us only the more sensitive to anything which we instinctively feel to be hostile to what we regard as a right ideal of individual or communal life. One frequent cause of irritation, and of inability to make others understand why we prefer this plan to that, is that we are often in bondage to some traditional form of words, really devised to meet circumstances now gone by. In our stumbling efforts after some new expression of our hopes and fears for national education, we cannot get out of the ruts of old thoughts. We are hampered by forms of words and by chains of argument which we have inherited from former times. We cannot think ourselves free from all that these obsolete phrases imply. Our real aims are in advance of our power of defining or expressing them. But what is vital to us are the aims, not the words. We may find our verbal arguments shattered in controversy, but we feel at heart that the attack has not touched the citadel of our thought. Something of this sort seems to be happening nearly everywhere under the guise of educational controversy. Intense feeling on educational questions is being aroused in nearly all the countries which are most exposed to the disintegrating and yet unifying influence of modern life. *Why* the feeling excited by particular proposals should be so intense is often a difficult question to answer. That any such feeling should be excited at all seems to come to some observers as a complete surprise. But of the reality and intensity of the feeling there is no question. Yet, after all, the intensity of the feeling is not to be wondered at when we realise that what is actually at stake in any great educational controversy is the ideal of individual and communal life. The struggle has gone on in varying forms for centuries, and doubtless in some shape or other is as old as the human race. The issues have been necessarily intertwined with the fortunes of certain institutions, ecclesiastical and civil. Different temperaments seem naturally to incline to different administrative solutions of the problems

raised. And, at such a time as this, the field of educational controversy often presents a spectacle of fierce confusion.

> "Neither battle I see, nor arraying, nor King in Israel,
> Only infinite jumble and mess and dislocation,
> Backed by a solemn appeal, 'For God's sake, do not stir, there!'"

In America, in Germany, and in England, the stream of social change is running like a millrace. The current is far too strong, and the volume far too great, for it to be possible to dam up the stream by barriers of educational restriction. To divert the flood into smaller and fertilising channels will require, not only a great deal of scientific and costly engineering, but a much more exact knowledge than we at present possess of the probable continuance of the present stream of change. Moreover, it will be necessary to come to some clearer agreement among ourselves as to the kinds of cultivation which it is desirable to promote, and whose business it is to be to work up to the utmost point of efficiency each department of national life, not forgetting those departments which are the most physically arduous and the least intellectually diversified. A national system of education involves, implicitly or explicitly, a definite theory of the right ordering of national life. The building up, therefore, of a stable system of national education involves either a stable condition of society and an equilibrium of social forces, or extraordinary prescience of the future and a far-seeing adjustment of means to definitely intended ends. Unfortunately the demand for educational unity does not always mean that educational unity is possible. People sometimes crave for that which facts beyond their control have placed furthest from their reach.

It may be asked why the State should not cut the knot by severing itself from all connection with education. But this would be impossible. If "education" is used in the sense of "training for the rising generation," it is unthinkable that the community should not accept, consciously or unconsciously, some part of the responsibility for the right upbringing of its future citizens. We may deplore the evils arising from governmental interference with education. We may resent bureaucratic control of so sensitive a part of national life. But we cannot, when we look into the actual facts, conceive of any modern Government feeling free to stand aside from the schools. The State is not really free to do so. Education is but one aspect of its own very existence. And therefore it is that the State is deeply committed to the task of aiding and supervising education. Some States, our own among them, have most reluctantly taken up the onerous charge. But the logic of facts has forced them further and further into the task. In England and Wales alone, the central and local authorities contribute to the various grades of education at least twelve million pounds a year. This vast machinery cannot suddenly be stopped, even if the State wished to stop it. Nor, on the other hand, can the machine be left to run on without incessant care and readjust-

ment to new needs. All the time, it is not merely costing money, but actually producing something; and the chief question at issue is whether that "something" is what the nation really needs or intended to get. No one therefore can afford to be indifferent to education, and our apparent lack of interest in the subject is a cause of astonishment to Germans and Americans, who realise that what is actually happening from day to day and even from hour to hour in the schools is of momentous consequence in one way or another to the national future. The State is compelled, practically as well as morally, to care for its schools. It cannot evade the obligation. Economic reasons alone and considerations of social order compel the State to act; and, having begun to act, it is gradually led to realise that it has taken in hand one of the most complex and insistent of duties, and that it cannot schedule out of its formula of education any of the elements necessary to the development of the physical and moral powers, as well as to the purely intellectual gifts, of the children. From point to point, it is driven forward by a rather vague but irresistible instinct that more must be done. There can be no finality in the work of education.

But here there arises another difficulty. "Education" is not a material thing like gold or ivory, that can be analysed, nor is it a service like coal-hewing, that can be positively defined. It is an ambiguous term. It is a common name for quite different kinds of power — spiritual, intellectual, physical, economic, artistic—and these different powers are developed differently and may be applied in quite contrary directions. "Education" is sometimes advocated as if all educators meant the same thing and wanted to educate children in the same direction. But, in point of fact, the word "education" has covered, and probably will always cover, quite conflicting tendencies. Some schools exist in order to give, so far as may be, every child an equal chance of "rising in the world." Other schools exist to "keep people in their place." But in a printed list of schools, there is nothing to distinguish one of these types of school from the other.

Take, for example, the question of rural education, which now is occupying much attention in many parts of the world. It is comparatively easy to say that country schools should aim at interesting children in country life. But what is meant by "country life"? Do we mean the processes and the beauties of Nature, the love and care of animals and of plants and flowers? If that is what is meant, shall we not all agree in a strong desire to foster the love of these things among young people from their earliest years? We may indeed differ in our opinions as to the fitness of the methods of instruction adopted to develop such interests, or as to the selection and preparation of teachers competent for such a task, or as to the steps which should be taken to make town as well as country children full of an open-eyed and intelligent interest in living things and in the works of nature. But, if behind the plan of special courses for village

schools there were to lurk the idea that country children should be so brought up as to be kept on the land, we should touch at once on a fundamental point of social controversy. Whether or not schools can so be used as to check whatever drift exists from rural districts into towns is a moot point. It is very doubtful whether any merely scholastic contrivance can counteract strong economic currents from one type of employment to another. Still less likely is it that any mere change in school lessons would shut out the penetrating and imponderable influences of a social movement. Agricultural populations have long memories, and, in any such townward movement as we are now watching in many parts of Europe, there are "old, unhappy, far-off things" to be reckoned with, as well as matters of wages, social outlook, a sense of constraint at home, the dulness of some kinds of village life, and curiosity to "see the world." But, on the other hand, it is unquestionable that schools can be made slacker, more sleepy, and more inefficient than they need be; and that in this way their influence, whatever it is, may be made less operative than before, with the result that some slightly larger proportion of school children may inertly take what they can get in the way of employment at home, for the good reason that many of them would be unfit to obtain anything better elsewhere. But it is evidently not to the advantage of any industry, agricultural or urban, to have stupid workpeople. If the conditions of employment occur intolerable to intelligent workmen, the solution of the difficulty must be found not in the suppression of intelligence but in a change in the conditions of the work. It seems that what is really wanted in the village schools is a far greater and more sustained effort *to make the children think.* This is not an easy task for any one to undertake, and its successful performance requires, on the part of the teacher, a remarkable combination of intellectual ability, knowledge, artistic power (for all good teaching is an artistic work), patience, moral insight, and intense sympathy with child life. The one thing which brings unfailing encouragement to any student of education is the knowledge that all over the country, unknown to fame but loved by their pupils, and trusted by all who know their work, there are teachers who are working in this spirit, often in the teeth of stupid prejudice, often without any adequate recognition, but with a devotion which is beyond praise and is indeed sustained by the highest of motives. These are the real upholders of the educational tradition. This is the influence which in the end will reform the methods of teaching in town and country schools alike.

If we allow such teachers freedom in the practice of their art; if we relieve them from the fret of needless worry and from the harassing anxieties which arise from unduly straitened means; if we place them in conditions favourable to healthy and active work; if we entrust them with sufficiently small classes; if we secure for them the leisure necessary for private study and for the fresh preparation of each lesson; if we give them access to

the books, papers, pictures, instruments, works of reference, and materials of various sorts which are needed by all who try to teach in a really living way the elements of a large number of different subjects; above all, if we make them realise that the nation appreciates the far-reaching value of their work and its almost sacred importance, then these teachers, supported by the sympathy and confidence of the parents of the children and guided by the growth and developing natures of the children themselves, will feel their way from point to point in this fascinating art of teaching; valuing tradition and yet able at need to discard it; avoiding one-sided excess or excitement, yet when necessary boldly combining extremes instead of falling into the timid evasion of difficulties; helped by theory, but always testing theory by practice; and calling into the service of their school each of the essentials of true culture—nature studies and literary interests, manual training and artistic expression, physical exercises and moral discipline, according to the different needs of their pupils and their own quick sense of the needs of the place and time. But *non omnes omnia.* Gardens and animals mean to some people what Plato and Aristotle mean to others. Either branch of study may be made a liberal education, and many people derive culture from both. But you cannot by a stroke of the pen confer on a devotee of the one the power of feeling, or imparting, a life-giving interest in the other.

More and more is the essential unity of all true education being impressed on the thoughts of those who are studying secondary and higher education. Essentially important as are the latter to any full development of national life, they cannot flourish alone. The critical years in a child's life are the earliest years. Therefore, the most indispensable part of national education is home training. That is the first condition of success. If parents fail in their duty towards their children, if they merely send them to school to be rid of them, if the spirit of home life is base or foul or selfish, very little can be done by the most elaborate provision of ordinary day schools. National education is like a cloud—

"Which moveth altogether, if it move at all."

The true basis of national culture is home-training. Next, and by rights interwoven with the home life, and almost of a piece with it, comes the primary school—the school, that is, which teaches children up to twelve. No great system of national training can flourish except on a basis of first-rate and appropriate primary education, but it is necessary to bear in mind that primary education is not confined to public elementary schools, though the latter provide by far the largest part of it, and are the avenue through which a considerable and increasing proportion of boys and girls pass on to the higher schools. But the relation between the different stages of education is reciprocal. Universities cannot flourish without first-rate secondary schools to feed them; secondary schools cannot flourish unless the boys and girls have been excellently trained during the years spent in the primary school, and primary

schools, in turn, cannot flourish unless their intellectual interests are constantly being stimulated and their intellectual standards upheld by the influences of the secondary schools and universities. From grade to grade of education there should be an unceasing circulation of influence. Impenetrable layers between grade and grade injure the welfare of the whole. Technical and professional education, in turn, base themselves on the general education provided by the primary and secondary schools, and (for a few of the most advanced students) by the universities. Moreover, under right conditions, technical and professional studies are restrained by the humane influences of general culture from undue or premature specialisation, and from selfish preoccupation in their own immediate concerns.

But in any such view of national education it is tacitly assumed that each part of the system is working towards the same end. This is by no means always the case. There may be a conflict of ideals between the public elementary schools and large numbers of the secondary schools. There may be a similar conflict between different kinds of universities, or between the universities and the higher technical schools. Such a conflict may be conscious or largely unconscious, but wherever it exists it tends to weaken the efficacy of the system as a whole. The different parts are working at cross-purposes and counteract one another. The difficulty would be much less serious if the mere fiat of the State or a mere change in the law were always sufficient to remove this conflict. But the roots of the difficulty often strike deep into the past. The trouble is often the outcome of a long history and of a traditional dissonance of ideals. In such a case there may be two virtually distinct systems of national education coexisting side by side in the same country. This phenomenon is very striking in France. But, under another form, it exists in England also. If our educational map could be coloured like a geological one, it would be seen at once that there are two quite different soils in close juxtaposition throughout our whole system of national training.

Because "education" is an ambiguous term, and is often made to cover intentionally conflicting aims, comparative statistics showing "educational expenditure" in different countries are apt to be misleading. To begin with, they are nearly always incomplete, even when they have regard only to one grade of education. In some cases the sources of income are so various as to baffle the most conscientious statistician. In other cases, some of the amounts are not included in the official summaries. For example, few foreign students are aware that the cost of providing the buildings (as distinguished from repairs and "maintenance") of our public elementary schools under voluntary management does not appear in the annual official statistics of educational expenditure. Again, the frontiers which divide one part of education from another are nearly always so disputable that the actual limits of the particular branch to which any given figures refer are as a rule by no means clearly defined. There is no sort of general understanding as to the exact meaning of quite common terms.

In England, "secondary education" has never been defined. In Switzerland, what are specifically called "Sekundar-Schulen" are practically the same as what in France are called "Écoles primaires supérieures." Certain departments of the latter are so like portions of the Écoles professionnelles that it would be difficult to say (apart from the fact that the two types of schools are under different Ministries) which belongs to the higher primary sphere and which to the sphere of technical education. Equally difficult again is it to draw the line between different grades of technical instruction, and yet it makes a great difference whether public funds are spent almost wholly on "Gewerbeschulen," or whether a large amount is concentrated on a few institutions, like the Technische Hochschule at Charlottenburg, giving technical education of the highest possible grade. Again, in some parts of Germany the term "middle school" is applied to secondary education proper, while in Prussia the middle schools are virtually higher primary schools, and entirely distinct in point of curriculum, status, and government from the higher or secondary schools. But, even if a common classification of schools could be agreed upon, and if all sources of income and expenditure could be brought into statistical account, there would remain a much more serious impediment in the way of framing comparative educational statistics. One country may pay for something called "primary education" which is intended to produce results that in another country would be regarded as reactionary and objectionable. For example, it may be conjectured that the education given in some country schools in the eastern parts of Prussia would not be welcomed in Illinois. Yet, in comparative educational statistics, this difference is necessarily ignored. To throw educational expenditures into one indiscriminating total is like lumping, in one addition sum, plus and minus quantities without having any regard to the signs that really govern the value of several constituents. It has recently appeared how difficult it is to arrive at accuracy in comparative statements of military expenditure. But military or naval expenditures are easy to define compared with expenditures on education. To add up all that a particular nation spends on what it calls "education," and to assume that the aggregate represents expenditure on progressive influences, would be almost as misleading as to add up the outlay on torpedo-boat destroyers, on an antarctic expedition, on North Sea fisheries, and on a racing yacht intended to compete for the 'America' Cup, and then to represent the aggregate as having been spent on "naval preparations."

Purely statistical inquiries into the subject of "education" are baffled by doubts as to what the term should be held to include. School systems alone do not constitute national education. On the contrary, a country may have some effective ways of disciplining and bringing up its rising generation without having any elaborate school system at all. In certain stages of human development a most stringent form of public education is

found in social convention and in customary law. In England we often hear of parents sending a boy to a boarding-school, not because they particularly wish him to learn this or that school subject, but because they want "to make a man of him." That is to say, they want him to conform himself to the current, though rather vague, idea of what an English youth of his position and prospects ought to be. This view of education, which is of venerable antiquity, rests much more on settled preferences for certain kinds of behaviour than on the desire for certain kinds of knowledge. In an extreme and savage form we can see the same kind of idea operating among those tribes which subject their boys, before the latter can take up the rights and duties of manhood, to most severe and exacting tests of courage and endurance. But, long after the disappearance of such primitive and savage discipline, the most potent force in shaping the thoughts and moulding the ideals of a community is found in the pressure of traditional opinion. So penetrating are the influences of customary thought that, while their power remains, comparatively little need is felt for the more artificial restraints imposed on young people by the discipline of schools. And everywhere, though in some countries far more than in others, this educative power of tradition still lingers, though often but a ghost of its former self. Yet, dim as it is, this is still one of the great controlling powers in national life, and often far more deeply significant of the true instincts of the nation than is the choice of studies appointed by authority to be taken in its schools. The movement for public education which began towards the end of the eighteenth century, and continued throughout the nineteenth, was in the main an attempt to fill the vacuum caused by the gradual decay of older forms of discipline. Strenuous efforts to establish some new provision of schools are sometimes due to a direct intention to excel in some form or other of international competition (industrial, commercial, or military), but they are often the result of a more or less conscious instinct that disintegrating and critical tendencies are in the air, and likely, unless counteracted, to dissolve the shell of tradition which protects the older conception of national life. The modern movement for organising primary education under the control of the State is hardly more than a hundred and twenty years old. Its origins, of course, are of far older date, but its rapid growth began when Europe was seized with the revolutionary spirit, and when in agriculture, in industry, in institutions, and in belief, the old order was challenged by new ideas. Within this educational movement, conflicting tendencies have from the first wrestled for the mastery. To some the movement has always appealed because of that side of it which is revolutionary in character and which seeks to transform the existing order of thought, and therefore of social order. But in persistent conflict with this revolutionary tendency, we can trace at every stage the influence of its strenuously conservative counterpart. The latter, instead of merely standing aloof from the movement, seeks to

alter its course from the inside, and to use the new power in such a way as to protect what can be saved of the old tradition, instead of destroying it. The actual course of the educational movement in England and elsewhere has been a zigzag. Its main course has always been in one general direction—namely, towards the liberation of the individual from various forms of external control. But the actual advance of the movement has been constantly deflected, now to this side and now to that, as the result of the incessant struggle of two conflicting forces.

In their crudest form the two views were opposed as follows. The one party, ardently desiring great social change, jumped to the belief that mere intellectual enlightenment would suffice to convince the world of the need for reform, and would itself provide the means of establishing a new and more satisfactory order of things between man and man, between the individual and Government, and between nation and nation. The other party, sceptical of such a result and (for good reasons or bad, or from a mixture of both) being profoundly attached to most of the institutions of the existing order, resisted any attempt to replace the old traditional culture by new kinds of instruction to be imparted throughout the country in elementary schools. Neither side had its way completely. Much of the old social and intellectual order was doomed to disappear. On the other hand, the moral effects of intellectual enlightenment have been a grievous disappointment to the more sanguine among educational reformers. Schools, however, were needed, and have been established everywhere, in spite of the opposition of those who objected to the expense and to the disturbance of time-honoured privileges and prejudices. On the other hand, educational reformers are beginning clearly to realise that schools are only a very small part of education; that education is not a thing by itself or a mere arrangement of codes, school rooms, and class teaching, but an aspect of life, an atmosphere and a discipline, and part of a much larger study—namely, that of the right or possible development and direction of national and individual life. In the study of education at the present time in this country, in America, in Germany, and in France, there is an evident growth of the feeling that school problems, though of course in some respects a special subject by themselves, are only seen in their true perspective when they are regarded as being in necessary and constant relation to other forms of social culture. The educational question is not a question by itself. It is part of the social question. And the social question is at bottom largely an ethical question.

Different nations, of course, lay different stress on this or the other outcome of secondary education. The German is apt to ask about a young man, "What does he know?" The American, to ask, "What can he do?" The Frenchman, to ask, "What examinations has he passed?" The Englishman's usual question is, "What sort of fellow is he?" All four, however, are tacitly referring to a current and rather vague idea prevalent

in their respective countries as to whither a prolonged course of education should have led. The German does not exclusively dwell on intellectual attainment, but he knows that a certain measure of general attainment is wont in his country to go with, or to be an index of, a completed course of approved school training, just as the Frenchman takes the evidence of certain examinations, not as being of ultimate value in themselves, but as giving a sort of shorthand indication of a number of generally-related qualifications. But the form in which the American and the English questions are so often put shows how much more habitually the English-speaking peoples prefer to lay stress on the general outcome of education rather than on its purely intellectual result, and how much more constantly they keep in mind the fact that the boy will have to prove his worth hereafter by his own success in practical life. Characteristically, however, the American's question points to a future of self-reliant and rather adventurous effort, to be spent in mastering new circumstances and in carving out a career under conditions which permit and encourage a variety of new undertakings. But the Englishman's question, without at all excluding the idea of such energetic and resourceful enterprise in some distant part of the Empire, nevertheless expresses the idea that there is a certain tradition of English life to which these young men will have in a certain measure to conform, and that their place in it will to some extent depend on their being able to fit into the established classification.

It has been the great achievement of English education to preserve, in the teeth of modern Continental ideas, the view that education is a process of physical, moral, and intellectual discipline, not only a course of training for the mind. The great English writers on education have always kept close to the facts, and, because so many facts have to be taken into account in any complete analysis of educational effort, they have done comparatively little, as compared with the French or Germans, to systematise educational theory. Consequently, they have often failed to make clear how great is the divergence between the characteristically English view of education and the Continental view. For example, Arnold and Thring are the two most famous names among the few who have attempted any detailed analysis of what we call the "tone" and "influence" of school life. The result of this comparative lack of English systematic writing on educational subjects was that, when the demand arose for theoretical writings about education, many ideas were taken over from France or Germany, without much thought as to their "latent premises" or regard to the kind of educational outlook which they really implied. In consequence, there has been in the sphere of our primary education a long struggle between rather ill-digested Continental ideas and the native English view of what schools should be and do. The issue is still far from clear, but there are many signs that we are gradually throwing off in regard to primary education many Continental preferences for extreme centralisation and uniformity,

and beginning to feel our way to a state of things in which each primary school will have a character and a corporate tradition of its own and be judged by its capacity—not simply to teach this subject or that—but to produce well-disciplined characters, open-minded intelligence in affairs, resourcefulness in emergency, independence of judgment, and adaptiveness to new social and industrial opportunities. The movement in this direction would already be much more apparent if we were not so much divided in opinion as to the sort of social and industrial conditions for which it is desirable to train the children of the great mass of the community. Germany and America seem, for the present at any rate, practically to have made up their minds. The one appears to incline to some form of Collectivism, under Imperial leadership and with strong military and naval protection. The other seems to incline more and more to vigorous individualism expressing itself in the form of political democracy, but always admitting the supreme right of the community to exercise such control as it may think fit over any form of individual or corporate activity. In certain crises, calling for strong government and resolute interference, the two extremes are not unlikely to meet. We in England oscillate between one theory and the other, shrinking (wisely, no doubt,) from the more extreme applications of each, but perilously apt to sink down into tepid compromise and to lose the benefit of both doctrines. This half-heartedness, which is the result partly of an inner deadlock of conflicting ideals, partly of a national preference for moderate measures, has affected, and is affecting, the whole of our educational system.

But our hesitation partly comes from a just sense of the extreme complexity of the influences which make up, in the true sense, national education. English writers on social subjects have often excelled by reason of their appreciation of the importance of environment, and through their perception of the interdependence of any one part of social life and effort on all the rest. Some great change in intellectual outlook or in economic welfare, which seemed at first only to affect a few, is found to have influenced indirectly a great part of the community, and to have been—

> "like a circle in the water
> Which never ceaseth to enlarge itself,
> Till by broad spreading it disperse to nought."

Consciousness of this complexity of things has often prevented sweeping changes. It has prevented many mistakes from being made, but it has also often hindered anything from being done at all.

At the present time the tendency of educational thought all over the world is to flow in the English direction. There is a general acknowledgment of the truth, which we have rather inarticulately clung to for generations, that education is not a matter of schools and colleges alone, but a plexus of influences—some traditional, some unconscious, some spiritual, some economic, some intellectual, some geographical, and comparatively few directly

didactic or pedagogical. The result is that English social institutions are being studied by foreigners and Americans with an interest never so strongly shown before, though of course at many earlier periods the influence of English social institutions has been of almost determinative importance in other branches of European thought. A further effect of the change is likely to be the growth of a new body of educational literature, less isolated in interest and less specialised in form than that which has been usual in recent times. Education, treated as part of the social question, will appeal much more strongly to the interest of English readers than do formal treatises on pedagogy. It is possible that English experience and English criticism will play in future a much more important part in the great international debate on educational questions than they have played for many generations past.

Some of the writers who most clearly realise that education is necessarily intermixed with other parts of the social question proceed to argue that, in order to attain to social unity, we should at any rate insist on educational unity—*i.e.*, on all children being compulsorily sent in early childhood to the same schools. But social unity cannot be achieved by any mechanical means; still less can it be secured by compulsory attendance at certain day schools. Varieties of schools are much more the effect than the cause of social differences. Day-schools can do little to establish social unity while the homes of the children are so different. Moreover, a child is only at a day-school for a small part of his waking hours. Potent for good as is the advice given by a trusted teacher, lasting as are the effects of a teacher's moral influence and good example, these are in most cases but of small avail when the tone of home life and the influence of companions are mischievous or corrupting. Companionships and other forms of social intercourse; what is seen or heard at home and in the streets; the influence of newspapers and other kinds of general reading; the atmosphere of daily life; the standards of conduct which are generally accepted by those among whom the children are set to work; the incalculable variety of impressions which fall on eye and ear, and colour the thoughts, and excite sympathy or aversion—these, far more than any mere instruction, form habits and impress themselves on character. Imbedded in much that is written on the social aspect of the educational question there often remain fragments of that older theory which always tended to exaggerate the influence of mere school teaching as compared with that of the more atmospheric forces of daily life.

Nevertheless the current of thought is running strongly towards a fuller realisation of the immense importance of social environment in educational work. And by "social environment" is not meant merely material conditions of actual domicile, location, food, clothing, cleanliness, and occupation (though of course all these are factors in the general result), but also spiritual, moral, and intellectual surroundings, the power of good or evil traditions, and the nature of the principles which,

whether unconsciously held or consciously adopted, help to determine conduct.

To some extent this web of controlling tradition is different for each nation. A rightly-adjusted system of education strengthens and repairs the web. An alien and unsympathetic system may cut it like a knife. This danger was strongly felt by many Welshmen at a time when the traditional culture of the Principality was threatened by the inrush of new ways of thinking and of new standards of success. The creation of a system of secondary schools on lines specially attractive to the Welsh people may possibly prove to have done much to preserve what is most characteristic in the Welsh genius for poetry and literature without unduly isolating Welsh culture from that of other parts of the United Kingdom. Wherever there is a strong instinct to preserve a national tradition from being weakened or dissolved by foreign influences, there is apt to be a marked enthusiasm for national education. It is noticeable that, in England, Puritan and Anglican (and their more modern counterparts) have each had a strong desire to express their way of thinking in some well-organised system of education, and that each in turn has made immense efforts to retain for itself the kind of protection which an appropriate and sympathetic education can provide. But neither has been able to impose its own ideals permanently on the other side, and at no period have these two elements in the nation found it possible to join in welcoming a common type of education as satisfactory to both. Various other nations, however, feel much more strongly than the English the need for some self-protective discipline as a safeguard against disintegrating foreign influences or against the weakness of extreme individualism. Conscious perhaps of their tendency to imitate foreign ways of thinking, and of their proneness to absorb foreign ideas, the Germans have spared no pains to inspire their educational system with a strong national bias. Their geographical position lays them specially open to all manner of foreign influences, as well as making them very much alive to what is going on in other countries. Moreover, they have experienced in their history so many of the ill, as well as the good, results of extreme individualism that it looks as though they had felt impelled to buckle down on themselves a form of national education which most Englishmen would feel to be a severe restraint on individual liberty.

National education thus becomes but another name for national environment. A boy whose uncle has emigrated to New Zealand or whose brother has settled in Canada or Cape Colony often realises certain great geographical facts much more vividly than a boy who has "got up" the details out of a text-book. But his personal experience needs to be deepened by systematic and scientific instruction. Rightly combined, the two are worthy to be regarded as education.

But no single nation lives its life apart from other nations. Never before have international and cosmopolitan influences been so strong as they are to-day. They affect the whole of education

as well as other departments of national life. Over against the international influences there are rising, as if in self-protection, stronger expressions of national feeling. But the two currents are really part of one great movement of thought and change.

There are signs in some directions of a tendency to exaggerate the importance of environment in education and in the formation of character. Having been comparatively neglected so long, the claims of environment to recognition in educational theory and practice may meet for a time with excessive recognition. But the differences in inherited power and in natural ability are so patent to all who have to do with young children that there is no likelihood of the importance of heredity, as distinct from environment, being permanently overlooked by educational workers. However, it must always depend in great measure on the environment in which a child grows up (using environment in its widest and least material sense) which of many inherited capacities are called into active development. The varying course of recent biological debate on this subject has its counterpart in the fluctuating tendencies of educational discussion.

So difficult is it to steer a middle way between the two false extremes which threaten every kind of educational effort, and so intricate does the whole question become under closer analysis, that some people are disposed to turn aside with a feeling of hopelessness at the almost appalling complexity of the problem. They are inclined to argue as follows: "Let us preserve, as intact as we can, what remains to us of tested educational excellence. Let us protect, at all costs, what we know to be good from schemes of reform which may work unexpected mischief. We know the virtues of classical education. Let us cling to it, instead of running the risk of spoiling it by blundering experiments. True culture, like a great school of art, is very much a matter of domestic or corporate tradition. It is incompatible with the levelling theories of political and social democracy. We cannot make the highest kinds of education generally accessible to the whole nation without destroying the leisure and reserve which are necessary to the proper development of skill and character. Very few teachers are capable of communicating the tradition. Comparatively few pupils are capable of receiving it. The process needs quiet, absence of worry, protection from the intrusive claims of practical life. It is necessarily, from a socialistic point of view, extraordinarily callous and wasteful. In order to produce one first-rate scholar it allows scores of other boys to get little good out of the school training. But it is much better for posterity that the few first-rate minds should get the fullest opportunity for their most fruitful development than that their growth should be hampered and curtailed by arrangements designed to meet the supposed needs of thousands of people of mediocre intelligence."

There is plainly a great deal of force in part of this argument

Almost the chief danger of modern education is the sacrifice of exceptional ability to the supposed interests of the commonplace. No education has ever been good without being very costly; not necessarily costly in point of the money charged for it, but very necessarily so in point of the sacrifice made for it both by pupil and by teacher. The immense extension of educational facilities has produced much that is meritorious as well as a very great deal that is insipid. But the whole tendency of publicly-organised education is to promote the interests of the average boy, not of the exceptional boy. We are often apt to overlook the fact that in the age which preceded the present development of public education, and which (on many grounds deservedly) is generally regarded as having been a time of educational darkness and destitution, a considerable proportion of the most eminent writers and inventors began life in humble circumstances.

But in a time, like the present, of rapid and disintegrating change, alike in ways of thought and in manners of life, it is impossible to preserve, as in some enclosed garden, old traditions of education intact and free from the touch of the modern spirit. Mere exclusiveness in education is not a possible remedy. The great schools exist to train up the main body of our future leaders. They cannot afford, even if they wished, to ignore the new needs of the times. They are themselves in process of rapid change. It is their function to weave the old into the new. The dead have to be left to bury their dead.

In short, whether we wish it or not, we are forced to consider the whole question of the aims of national education. We are compelled to think out, as clearly as we can, what we want to see accomplished by each part of our educational system, and also by our national education as a whole. This raises incidentally the question—What is it that the secondary schools of a modern country ought to teach?

(1) Some contend that their chief function should be to arouse an interest in intellectual things, and to start boys in the way of thinking about social and other problems, with a view to raising up a generation of men who will strenuously combine to reform what is remediable in our present social conditions. There is in France and Belgium a strong group of educational workers who wish to make the study of social questions a much more prominent feature of secondary school curricula.

(2) Others, on the contrary, protest against any change which would prematurely occupy a boy's mind with anxious questions of this kind, and introduce into school-work many debatable and controversial matters. A few go even further than this, and speak as if it were a blunder even to stimulate a boy's interest in abstract intellectual matters beyond the limits of practical necessity. "Let us not," they argue, "develop in boys' minds the disease of thought. In the present stage of inquiry in nearly all branches

of knowledge, intellectual interests lead you to no definite conclusions. Keep boys, as long as you can,

> 'Free from the sick fatigue, the languid doubt,
> Which much to have tried, in much been baffled, brings.'

Do not worry them with ideas before their time. Those who are born to be interested in ideas will get at them for themselves. Many others, who would only be miserable if they were made to think, will happily escape thinking if you let them alone."

(3) Others strongly object to the prominent place occupied by Latin in our secondary schools. They regard it as a relic of mediævalism, and as a mere survival from a bygone state of things. They complain of the uselessness of much that is taught in schools, echoing the complaint of Faust—

> "Was man nicht weiss, das eben brauchte man,
> Und was man weiss, kann man nicht brauchen."

(4) Others, again, regard the modern hunger for higher education as largely due, not to a real love of learning, but to a desire to rise in social position. They contend that it is politically dangerous to the State to produce so large an intellectual proletariat, unfit for manual work, discontented with non-literary callings, and yet far in excess of the number of persons really required to fill the learned professions.* This over-production of people with intellectual interests is often commented on in France, and a recent Socialist writer exults in it as being likely to provide large numbers of recruits for the forces of revolutionary socialism.

"As for the 'intellectuals,' everything is driving them in the direction of socialism. The enormous increase of the cultivated classes and the impossibility of satisfying the desire which intellectual cultivation excites have produced a multitude of social nondescripts, belonging to no particular rank in society, discontented with their prospects and position, hungry for appointments and anxious to find work. In no other country in the world are so many diplomas and certificates awarded as in France. Nowhere else is there such a crowd of young men hoping to get employment in the Civil Service, or as doctors, or as lawyers, or as teachers, or as journalists.

"This overproduction of 'intellectuals' has been caused by the uncertain outlook for the middle classes and by the social prestige of the so-called liberal callings, as well as by the drift of political and economic development.

"All these 'intellectuals' naturally turn to politics, because politics lead to everything. This tendency towards politics is specially noticeable in France. The majority of the men, about whom I am speaking, have been educated entirely on the classics. That is to say, they have received an education designed to prepare people for cultivated leisure, not for the tasks of modern life. This course of classical education has furnished them, not with practically useful knowledge, but with some general ideas and a large assortment of commonplaces. They are the products of a 'viewy' education, the tendencies of which conflict with the necessities of modern business. Consequently, they remain useless for practical affairs. They all drift into politics, and the movements caused by social discontent (socialism, antisemitism, and the like) find among them a large number of recruits."—H. LAGARDELLE. *Les Intellectuels devant le Socialisme.* 1901

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* See Appendix I. Possibility of an Excess of Secondary Education.

(5) Others frankly demand a kind of secondary and higher education which shall directly prepare boys for different kinds of modern industry and commerce. But this again is a vague demand. Almost everything depends upon the kind of business for which the preparation is designed, and the sort of position which (granted that the boy's abilities are sufficient for the work) his parents can secure for him to start with. The arguments in favour of (so to speak) commercialising secondary education are of many shades. They vary from an almost ideal view of the "intellectuality" of modern business down to the vulgarest and most purblind Philistinism. But nearly all of them shirk inquiry into the ethical questions which must underlie any judgments about the aims of education and the principles of commercial competition. Some proposals for business education seem calculated to produce living dictionaries of commercial intelligence or patiently subordinate "experts" rather than men of strong character who would be likely to excel as pioneers in industry or as active leaders in practical undertakings. With a few exceptions, the commercial world of London shows few signs of belief in schemes for commercial education. This is not necessarily a proof that some form of commercial education is useless or that there is no occasion to press for its introduction. But evidently there is some gap between the ideas of many of the theoretical advocates of commercial education and the actual facts of business life. Hence there is a sort of deadlock. Moreover, any plan for lowering the tone of secondary education in order to furnish capital with cheap and unquestioning intellectual tools would arouse deep and angry resentment among all who believe that, whatever else it does or fails to do, education should at least endeavour to illumine moral principle, to inculcate a high sense of responsibility and of honour, to strengthen individuality of character, and to help each man to form a clear but discriminating judgment in unexpected difficulties and in confused and intricate affairs. Imagination, energy, and courage are, indeed, indispensable to the building up and widening of trade, but the permanent prosperity of a great commercial people is rooted in honour, in truthfulness, and in the loyal keeping of promises.

The above are some of the many conflicting opinions that are now being urged in different parts of the world in regard to secondary education. But it is not the future of secondary schools only which is involved: the present upheaval of thought and feeling upon educational questions affects the whole problem of education in all its grades. Some are sanguine that we are on the eve of a great renewal of educational ideas, and that after a sharp breach with the old tradition we shall soon see a complete change in what is generally taught in schools, and the general adoption of new standards by which to judge what is excellent in school life. For my own part, I cannot share these views. It seems to me extremely unlikely that there will be any sudden or complete break in educational tradition. The

latter is one of the most conservative forces in the world, and has persisted through many social and political revolutions. Change there is certain to be, and for a time changes are likely to come at an accelerated speed, but the adoption of new ideas and new methods will probably be gradual and not at all dramatically sudden. There is a great deal of latent wisdom in established forms of teaching and training, and it is impossible to judge, without many years of trial, what is the real value, and what are the unforeseen drawbacks, of a new subject of instruction or of new methods of teaching it. Not very long ago some educational reformers felt assured that the remedy for *stupor pedagogicus* would be found in requiring so many hours a week of natural science, but it has been found that chemistry and physics can be taught in schools as dogmatically and uninventively as if they were a new form of catechism. In strong reaction against this perversion of scientific method, emphasis has more recently been laid on the importance of getting children to find out some things for themselves. But, as a matter of fact, the stock of applied knowledge in the world is so vast that we are all obliged at every period of our life to take a great deal for granted, besides discovering as much as possible for ourselves. It is not a bad preparation for life to acquire at school the habit of living partly by faith and partly by independent investigation. The two processes have often to be combined in a single course of thought as well as of action.

There is a good deal of extravagance and exaggeration in much that has recently been written, especially in France, in criticism of the ordinary routine in secondary schools. Reform is neither so easy nor indeed so universally necessary as some writers would make out. But the fact remains that there is a great deal of emotion on the subject of education at the present time. This does not lessen the gravity of the position. Education is always a sensitive point, because any settled practice of training of the young really rests on certain moral and intellectual assumptions which are exactly the things challenged by those eager for sweeping change. Therefore, excitement (and especially rather inarticulate excitement) about educational questions may be regarded as a danger-signal, indicating great disturbance in people's minds. Nothing is more explosive than this intense feeling of dislike for the old traditions. And though, when it comes to formulating new plans of study or training, there is an extraordinary conflict of views and nothing which approaches to general agreement, there is nevertheless a very significant, and apparently growing, mass of opinion adverse to the present condition of secondary education over a large part of Europe.

Last year there were held in Paris a number of international congresses on educational subjects. One congress discussed primary education; another, secondary; a third, university; and so on, through nearly the whole field of educational effort. It often happens in any such assembly that, out of a considerable number of topics presented on the programme, some one subject becomes by general consent, the chief matter of debate. This

generally takes place when there is some special difficulty which is pressing on the minds of thoughtful men, engaged in the study of the same subject in all parts of the world. Last year, at the Congress on Primary Education, the members were specially concerned with the problem how to deepen the moral influences of the primary school. At the Congress on University Education, the subject which excited the most interest was the question how best the universities can extend their teaching in such a way as to bring the steadying influences of dispassionate and disinterested study to bear on the masses of adult citizens and voters. At the Congress on Secondary Education, the chief debate turned on the question what should be the curriculum of studies in a secondary school, with special regard to the effects of education on character. It is noteworthy that in all three cases what was really under review was the bearing of education on conduct. In other words, the business of a school is not exclusively intellectual. Disproportionate attention to the intellectual side of its work results in the weakening of those forms of moral training (much more the outcome of quiet personal influence and example than of direct instruction) which are indispensable to the strengthening of character as well as to the gaining of true knowledge and to the right use of it when gained. The secondary schools on the Continent seem, in the main, to have over-intellectualised themselves. Our English schools, on the contrary, are too often intellectually below par. We have much to learn from them, and they from us. What is wanted is to hit the mean.

CHAPTER III.

Currents of Opinion on the Subject of the Secondary Education of Boys in Germany.

Among Gray's fragments on education there have been preserved the remarks that "it is the proper work of education and government *united* to redress the faults that arise from the soil and air," and that "the principal drift of education should be to make men *think* in the northern climates and *act* in the southern."* The first of these maxims exactly describes the remarkable work which the Government of Prussia has accomplished, by means of persistent efforts extending over more than a century, not only for its own citizens, but for the German Empire, and indirectly for the whole world. The second maxim illustrates the intellectual aim which dominates the whole of German higher education. It spares no pains to make boys *think*. But it was never intended to make them

* Aldine edition of Gray's Poems. Note to the *Alliance of Education and Government*, p. 152.

think for the mere pleasure of thinking. It intends to make them *think* in order that they may *act*.

Act, that is, not on impulse; not merely with blind, dogged persistence, and not simply with splendid individual energy and courage, but with far-seeing calculation, with skilful and economical adjustment of well-chosen means to well-defined ends, and in combination with great numbers of other workers uniting their strength in the same task. The organisation of modern life in Prussia has been dominated by scientific conceptions; not, that is, by any exclusive regard for physical science in its narrower sense, but by those ideas of exact and co-operative inquiry and endeavour which have been so brilliantly illustrated, and therefore so powerfully enforced, by the advance of modern science. The fundamental characteristic of the best German effort, in many fields of practical as well as of speculative activity, is concerted specialisation, but not premature specialisation. The Germans know that, in order to specialise to the best advantage, nine men out of ten need the equipment which is given by a good general education.

It is highly necessary that Englishmen should realise how efficient, from the point of view of intelligent instruction, are the German secondary schools. Much can be learnt from a study o' their methods and also from their scientific precision of educational aim. But it is a different thing to argue that the best way to secure the future of British industry and commerce would be to imitate the German form of educational and academic organisation. It is a large assumption, to start with, that an educational system can be transferred from one country to another, as if it were a system of gas lighting or of electric traction. Moreover, the German system of education is but a part of their social order, and in order to make a true copy of it, it would be necessary to introduce into England a degree of State control which would not only be alien to our more recent traditions but extremely unlikely to commend itself to English tastes. Assuming, however, that it were thought desirable and found possible to recast the whole structure of our administration, and largely to remodel the conditions of our social life, it is far from likely that the new kind of organisation, however closely it followed German precedents, would produce the same results in England as in Germany. Lastly, and most important of all, no mere copy, however faithful, of the administrative machinery of German life would necessarily reproduce the spirit of German intellectual effort, which is the true secret of what is best in German education, and which has been the most powerful driving force in their administrative machine. What is really worth copying, and perhaps the one thing which could be directly imitated, is German devotion to the claims of knowledge. It is in this that, as a nation, we are so far behind them, while in many matters of political and social organisation we are so far ahead.

In the *Advancement of Learning* Bacon says that "it is order, pursuit, sequence, and interchange of application which is mighty in nature; which, although it requires more exact knowledge in

prescribing, and more precise obedience in observing, yet is recompensed with the magnitude of effects." With this method he unfavourably contrasts another, consisting of "inconstancies and every-day's devices, without any settled providence or project." It is the first of these methods which the Germans aim at following. But concerted specialisation of the German type is only possible when the scattered parts, which form the whole, are held together by some large controlling power, recognised and obeyed by every single agent in the great undertaking. Division of intellectual labour on an immense scale implies the existence in the background of some dominant authority, providing the framework within which each separate worker finds his place and his duty. In the highest types of concerted intellectual effort, this place of dominant authority is not occupied by the administrative Government. In the greatest and most fruitful intellectual movements, the really dominant authority has always been not administrative in character, but intellectual or (in the largest sense of the word) spiritual. The binding idea which most firmly holds together the intellectual labours of men engaged in the building up of knowledge is the conception of the unity of all knowledge and the conviction that all individual research and labour should be subordinated to the claims of knowledge as a whole and of society as a whole. This idea may seem dim and shadowy and transcendental, but nevertheless it has always been a very real and potent force in the minds of those who have done the most illustrious deeds in the field of scientific research. The real strength of a great scientific movement comes, not from any vulgar regard for sensational or profitable results, but from loyalty to the higher claims of truth. Such a sense of the continuous claims of knowledge on the duty of the researcher becomes a habit of thought. It is gradually embodied in so many scientific associations, in so much professional *esprit de corps*, and in so many of the relations of social life, that it greatly affects men who would otherwise have been almost insusceptible of its influence. But it alone can uphold each individual worker and sustain him in apparent failure and through years, or even a lifetime, of obscurity. This is the spirit which is present in the minds of true scientific investigators all over the world.

It is important to dwell on this intangible and spiritual aspect of all great scientific movements, because, in considering the case of Germany, there is some danger of taking what is, after all, but a mere matter of organisation to be the real cause of her scientific greatness. The initial and underlying cause of that greatness was not the skilful contriving of a new form of State organisation, but an intense and self-sacrificing enthusiasm for truth. Without that enthusiasm there would have been (so far as we can see) no great building-up of German culture, and no ultimate accomplishment of German unity. The resources and organisation of the State have, it is true, been called in, almost from the first, to help forward the work which the great outpouring of patriotic and

scientific enthusiasm began. But State organisation was not the source of what has been really vital in the movement. Free scientific inquiry may even in the end have to escape from the grip of the State. But for a time at all events State organisation seems to have acted as a shell to protect scientific inquiry from the dangers besetting it in the earlier phases of its work, and in Germany it has done much to further the prompt application of scientific knowledge to the tasks of practical life.

If the Government of a country be so constituted as to be able to enter with understanding and discriminating sympathy into the actual tendencies of scientific thought, and if it be both able and willing to give sufficient and timely aid to projects and inquiries which need and merit pecuniary help, it may promote scientific effort to an extraordinary degree. Germany is a standing proof of what can thus be done and (apart from many more important considerations) how profitable it may be to do it. But this is a very different thing from putting it into the power of the Government to determine, directly or indirectly, what course scientific thought shall take: what it shall avoid and what it shall try to prove. No Government can ever know enough to direct the course of scientific investigation. Science itself must decide what course it will take, and each individual worker must feel within himself that, though he is but part of a greater whole and not individually master of the results of his own labours, he is nevertheless absolutely free from any pressure of political control and under a moral obligation to serve knowledge for its own sake. It was tne spirit of untrammelled inquiry which created the great intellectual tradition of the German universities and which has been the real cause of German scientific progress. The future alone can show how far such freedom is compatible with centralised State control.

But at the present time many sides of German life are organised on principles which are nearly akin to those underlying the Collectivist ideal. We in England find it difficult to realise on how many sides of individual and communal life Government in Germany has laid its hand. What was it that induced the Prussian nation, and ultimately the German people, to submit to this centralised control, which England has hitherto resisted? It was not mere physical compulsion. Still less was it the hope of gain. It was a moral conviction of the need for unity. This was the power which constrained the Germans (by their own admission the most individualistic nation in the world) willingly and indeed enthusiastically to bind themselves in a common service and to place themselves under so stringent a form of governmental supervision. It was an act of self-discipline, not a mere bargain for profit, and still less a result of threats from abroad. The necessity for it doubtless appealed to different minds in different ways. Some would more clearly perceive the administrative advantages others the military, others the economical. But beneath all this, and really

determining the course of events, was this moral and intellectual conviction that the supreme claim on the individual was that of service in the interests of knowledge as a whole and of the community as a whole.* The crucial step was taken at the beginning of the nineteenth century, and Prussia has never gone back. She has built up, in consequence, what is now an Imperial fabric of scientific government, one essential part of it being educational control. This administrative organisation was intended to support and safeguard at every point what the movement of moral and intellectual enthusiasm began. Whether it has actually done so in the sense which its founders intended is another question. Whether, in its present form, the machinery of State control is really promoting the best interests of German thought is a matter about which very different opinions are held. But, in any case, let us not mistake the external machinery for the real cause of German culture or even of commercial prosperity. The strongest fabric of administrative organisation would not last long, if at any time the inner philosophic conviction, which really upholds it, were to die away. The original impulse was two-fold. It came from a very vivid conception of the unity and dignity of knowledge, and from a no less ardent belief that, in order to secure the essentials of intellectual freedom for the individual and the possibility of learned leisure in the State, there must be administrative unity in national life. Necessarily the two impulses—the one cosmopolitan in character, the other intensely national—have from time to time come into conflict. At one period, the cosmopolitan tendency threatens to dominate the national; at another, the national interest seems to prevail over cosmopolitan sympathies. But, all through German history, since the beginning of the hegemony of Prussia, we can trace these two tendencies in German education, reciprocal in their influence and each checking the other; so that, as a matter of fact, while there is nowhere else a more intensely national system of education than that of Germany, there is at the same time no country which is regarded by so many scientific workers all over the world as the true Alma Mater of their intellectual life.†

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* *Cf.* Fichte's Lectures on *The Characteristics of the Present Age*, especially Lecture XIV., on "The Development of the State in Modern Europe."

† The United States Ambassador to Germany, Mr. White, speaking at the Thanksgiving Day banquet in Berlin, November 29th, 1900, said that "though Great Britain was generally revered as the motherland of the United States, yet Germany, from the intellectual point of view, had more and more become the second mother of the United States. More than any other country, Germany had made the universities and technical high schools of America what they now were—a powerful force in the development of American civilisation." (*Times*, December 1st, 1900.) Professor Virchow, of the University of Berlin, speaking at the Prussian Secondary Education Conference, in June, 1900, referred to the large numbers of American and Japanese studying in the German Universities, and attributed some part of the high reputation enjoyed by German medicine abroad to the fact

It happens that, at the present time, this German devotion to the idea of science and organisation is showing itself to be capable of producing remarkable results in the sphere of commerce and

that foreign students have been encouraged to avail themselves of the higher instruction provided at the great German seats of learning.—(*Verhandlungen über Fragen des höheren Unterrichts, Berlin, 6 bis 8 Juni*, 1900, p. 22. Halle, Waisenhaus, 1901.) Sir Michael Foster, speaking in London at St. George's Hospital Medical School on November 6th, 1900, said that "he heard much nowadays about post-graduate study. He did not feel that he had quite grasped what was always meant by post-graduate study, which sometimes seemed to mean teaching men the things which they ought to have learnt before they graduated. If that was the case, post-graduate study was to be discouraged. It was sometimes spoken of as if it were a means of polishing the graduates who had been rough hewn by the examinations. If that was all, he did not think they need spend much time or labour upon it. But there was a post-graduate study which appeared to be of immense value. It was when the student was cleared from all the trammels of examining bodies that he was in the most fit position to be put on the proper path of inquiry, to be trained in the true methods of research, to be trained to work so as to satisfy, not the demands of an examiner, but the demands of nature. Post-graduate study which would act as a definite inauguration into inquiry would be of very great value indeed to the profession. He had just returned from some long travels in America, where he met many of his brethren, and where he heard, not once only but again and again, that when they sent their graduates to England, although those graduates were impressed with what they saw as to the unsurpassed excellence with which our London schools trained the medical student, they themselves, as graduates seeking post-graduate aid, got very little from the general hospitals, and had to go away from England, often against their wish, and pursue research abroad. He thought this pointed to the existence of a need in our hospitals which should be supplied, and that if this were done a large addition to our medical knowledge would be the result." (*Times*, November 7th, 1900.)

The educational attractions of the German Universities and Technical High Schools are so great as to cause a somewhat formidable influx of foreign students. On this subject the following letter appeared in the *Times* from the Berlin correspondent on July 5th 1901:—"The number of foreign students who come to Germany in order to obtain a University training or to supplement the training acquired in their own countries has given rise to many complaints. At present there are no fewer than 2,606 foreigners on the books of German Universities. Of these 855 are studying at Berlin, 370 at Leipzig, 232 at Munich, 159 at Heidelberg, 141 at Halle, 140 at Freiburg, and 102 at Göttingen. The rest are divided among the other Universities. The Russians are the nation most strongly represented, and can show at present no fewer than 717 students at German Universities. The fact is explained by the present unfortunate state of affairs in the Russian Universities and by the difficulties which are placed in the way of the higher education of Jews in that country. In addition to the Russians, there are 507 Austrians, 256 Swiss, 157 Englishmen, 323 Americans (mostly from the United States), 154 Asiatics (mostly from Japan), 68 Bulgarians, 50 Dutchmen, 47 Frenchmen, 35 Turks, and contingents from many other nations. In all 7·3 per cent. of the students at the German Universities are foreigners. These figures do not include the numerous foreigners studying at the Technical High Schools. The large percentage of foreign students is regarded as a very serious grievance in many academical quarters. It is felt to be unjust that so many strangers should reap the benefits of the sacrifices made by the German States for the higher education of their youth. Many professors complain that the

industry.* But material advantage of this kind has been but a by-product (and a somewhat unexpected by-product) of the spiritual and intellectual enthusiasm which found one of its expressions in Imperial and commercial union. One of our greatest men of science said a little time ago that the most successful investigators are those who pursue their inquiries, not with the hope of profit, but for the love of knowledge.† It may be conjectured that the same truth applies to German industry and commerce. We must not forget, indeed, that the Germans have always been one of the chief commercial nations of Europe, and that, but for internal dissensions and foreign wars, they might well have retained for generations the chief place in European trade. German science did not create German aptitude for business, but German science and painstaking applications of scientific method have transformed German industry and are among the chief causes of the remarkable recent extensions of German trade. And the roots of German science lie not in the desire for material gain, but in disinterested devotion to a severe and remote ideal of philosophic truth. It is the present fashion in Germany rather to scoff at the dreamy and self-absorbed philosopher, but it is the philosopher and the self-denying man of science, serving knowledge for her own sake and with no hope of further reward, who first set in operation the causes of this remarkable growth of industrial and commercial success, and nothing would be more likely to threaten the future prosperity of German trade and the welfare of German institutions than the decline of that disinterested passion for knowledge, which was often noblest when most grotesque.

Some of the practical results of intellectual organisation as seen at present in Germany were excellently summarised in a leading article in the *Times* on a speech recently made by the German Emperor at the close of the North German Regatta at Cuxhaven. The Emperor asked his hearers to drink to German yachting and

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majority of the foreign students have not received a preliminary training so thorough as that enjoyed by their German contemporaries, and that in this way they bring down the level of University teaching and retard the progress of the classes in which they take part. German students protest that a disproportionate share of the limited accommodation in the laboratories of the Universities and the Technical High Schools is given to foreigners, to the disadvantage of the native students for whom it was primarily intended. The foreign students, moreover, being in many cases more or less ignorant of the German language, absorb a large part of the time and the attention of the professors and their assistants. The native students of the Technical High School of Munich have signed a petition requesting that the question of the admission of foreign students should be reconsidered, and that steps should be taken to put an end to the abuses of the present system."

* A careful study of the more direct bearings of the work of German schools or colleges on German industry and commerce will be found in Mr. Fabian Ware's *Educational Foundations of Trade and Industry.* (London, 1901.)

† Professor William Ramsay's address on "The Functions of a University," at University College, London, June 6th, 1901.

the Hanseatic spirit, two things which he regards as closely allied because "our future lies on the water."

"The notable thing in the speech," the writer in the *Times* remarks, "is the breadth of the Emperor's conception of the functions of the State. . . . He does not regard its activity as limited to the carrying on of administration, nor does he contemplate as an alternative that it should usurp the functions of individual citizens. His view evidently is that, while performing the duties of government, the State should not merely leave private enterprise unfettered, but should always be ready to second its efforts by every means open to a powerful helper. Co-operation, in short, without interference is his notion of the duty of the State towards those engaged in extending German commerce and German influence. The old Hanseatic towns were limited and hampered by the want of the vivifying and protecting power of the Empire. It is the Emperor's desire that the Hanseatic towns of to-day should enjoy all the assistance that can be given by the intelligent or watchful care of the State.

"It is not altogether easy for people in this country to understand this German ideal system of national effort. Yet it is already to a large extent realised, and is a potent factor in the competition with which Germany is rapidly confronting us everywhere. In Germany diverse national activities are co-ordinated to an extent of which people in this country have little conception. . . . Probably the root of the matter must be sought in the educational systems of the two countries. . . . Those of our people who do know about business—that is to say, the undistinguished people, the sum of whose individual energies have made our world-wide commerce—as a rule know next to nothing about the range of ideas with which our Universities concern themselves. It is not so in Germany, or at least it is not so to anything like the same extent. However they manage it, the Germans do attain to greater intellectual homogeneity. They produce men as learned as any turned out in England, but learning on the whole stands less apart from the general everyday work of the world. Therefore, those who run the administrative machine and those who carry on the vast work of individual initiative in practical affairs find it much more easy to understand one another, and to co-operate without interference, than they find it in this country. The difference is of vital importance, and it runs through everything. What we have to face to-day is not the old competition in which Englishmen always held their own—the competition of individual against individual. We have to deal with a nation intellectually organised in such a fashion that the individual, though depending upon his own efforts, is in the position of a scout who has his supports to fall back upon and a staff to provide him with information."*

So far has this intellectual organisation of German life advanced, that it seems to have already become a kind of second nature to most of the intelligent men in the nation, while of course the great mass of the people takes it for granted, without realising all that it implies. For the present, at any rate, it is producing a large number of striking and convenient results. Take, for example, the systematic development of the German navy and mercantile marine; or the development of the aniline dye industry and the manufacture of artificial indigo; or the growth (largely due, it is said, to the influence of the Reichsanstalt) of the manufacture of scientific apparatus; or again, the building up of the Imperial system of insurance for old age and for sick and invalided workmen. One thing leads to another, and, when scientific methods of

* *Times*, June 21st, 1901.

organisation have once got a real hold on national life, they permeate first one and then another set of institutions. For example, the Act of 1899 for the insurance of sick and invalided workmen (itself a further development of a former law passed ten years earlier) has greatly stimulated in Germany the study of new methods of treating consumption and other forms of tubercular disease. The Act itself empowers the authorities to institute medical treatment in cases where the powers of an insured person to earn his living in future are threatened by some curable complaint. As a direct consequence of this and the earlier Act, the State Insurance Institutes of the Imperial Board of Insurance, co-operating with other interested bodies, have brought about the establishment of forty-five sanatoria, in which some 20,000 of the poorer classes will annually be able to obtain a course of about three months' open-air treatment for tubercular disease.* But here again a variety of causes have combined to make this development possible. The immediate cause was the Insurance Act; but those who administer the insurance funds have been brought up in the habit of mind which constantly seeks scientific aid in practical difficulties and applies in a far-seeing way scientific remedies for national evils. Yet there might have been no scientific remedies to apply, unless there had been a continuous and very active process of scientific thought and investigation proceeding in the country. And the process of scientific inquiry is concerned not only with this particular problem of tubercular disease, but with thousands of other questions, out of which varied and incessant work there may start at any point some unexpected light on grave practical problems. Scientific investigation of this kind, however, cannot be limited beforehand to what is certain to be immediately profitable or practically advantageous. It must range over a wide field, and must concern itself in large measure with what is purely theoretical and remote from industrial applications. Hence it is that the tradition of disinterested research, which is the highest glory of the German universities, has been an indispensable factor in the whole process of reorganising German life on a scientific basis. And the German universities have not derived their strength from any narrow regard for immediate utility. They are great because they have been disinterested in their devotion to knowledge, and because in their pursuit of truth they have been free.

It may be true that, as a recent writer has remarked:—

"Every year thousands of young men leave the German Universities trained in scientific method, trained to distinguish between the true and false in things. This is the army with which Germany is conquering the world's markets. As chemists, engineers, manufacturers, these men apply the scientific method to practical affairs, their acquired power of discrimination enabling them to seize on every advance made in pure science, and to turn it to practical advantage."†

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* *Times*, May 27th, 1901.

† Professor Starling on "The Pressing Need for more Universities," in *The Nineteenth Century and After*, June, 1901.

But "to distinguish between the true and the false in things" is given to few, and could hardly be claimed by the most enthusiastic admirer of German universities as being the common hall-mark of an academic education. Moreover, in the application of science to the industrial and other needs of modern life, the technical high schools, as distinct from the universities, have played an important, if not a decisive, part. But in the case both of the technical high schools and of such parts of university work as have had direct bearings on industry and commerce, what has really upheld the standard of learning and kept research on the highest level has been an "imponderable thing," namely, that disinterested devotion to knowledge and truth for their own sakes and without regard to their practical consequences, which has been, as it were, the religious spirit animating the German universities. And neither technical high schools nor universities could have done their work, had not the German secondary schools furnished them with an unfailing supply of highly-disciplined material in the form of well-prepared and liberally-educated students. The outposts of the university spirit are well entrenched in the secondary schools. Higher education in Germany enjoys the advantage of unity of organisation and (so far as such a thing is ever possible) of unity of spirit and of aim.

But the fact that in Germany the working of the Imperial Insurance Laws has thus caused a great extension of a new method of combating tubercular disease illustrates yet another side of national organisation, which needs always to be taken into account in any estimate of German life. The Imperial Insurance Laws could not have been so easily carried into practice had not the Government in every German State possessed a far more detailed and continuous knowledge of the whereabouts of every individual citizen than is at the disposal of such a Government as our own. This knowledge is found useful for many purposes of administration, but the fundamental reason for possessing it is to be found in the practical needs of the system of compulsory military service. The influence of this system has deeply impressed itself on German life.

"The system of universal service," says a recent writer, "has grown into the very life of the nation. That it does not impede industry to the extent that might be supposed is due to its priority to the economic development of the country as we know it. Hence industry has merely had to accommodate itself to a condition of things which existed long before it laid claim to the energies of the people. Were a country like England to go over to universal service, its social and industrial life would have to be remodelled in every direction, and the consequences would be disturbing beyond estimation. Germany has been spared any revolution of the kind, because it imposed upon itself this yoke at a time when it entailed no great hardship, and habit and time have now entirely accustomed the bearers to the burden. Moreover, compensating circumstances of very real value exist."*

* W. H. Dawson, *German Life in Town and Country* (London: Newnes 1901), p. 84.

Side by side with the influences of German education are to be traced the influence of the German military service. The two sets of influence interact on one another and intermingle. German education impregnates the German army with science. The German army predisposes German education to ideas of organisation and discipline. It is not an accident that educational and military institutions both flourish side by side in German life.

"Germany is a land of schools, just as it is a land of soldiers, and in truth the association between the school and the army, or, more correctly, the army's efficacy, is closer than might at first sight be supposed."*

There is no doubt that one great effect of compulsory military service on the German people has been to make them more patient, more submissive to organisation from above, more disposed to accept control. German writers themselves say that by nature the German people are extremely prone to individualism. It may be an instinctive sense of this weakness that renders the German nation so ready to submit to so stringent a remedy. But there is no doubt that the habit of organising, and of submitting to organisation, has produced many valuable results in the field of industry and commerce. The rank and file have learnt how to obey, and have realised how much satisfaction comes from regular discipline. The leaders, trained to obey authority, are also educated to exercise authority, and to feel a direct personal responsibility in all details of their work, as well as to regard the scientific study of their calling as both natural and necessary. Thus military and educational discipline go hand in hand. Each helps the other; each does something to correct the other's characteristic defects. Both are preserved and fortified by law and custom and by administrative arrangements skilfully devised to attain that end. But behind all the forms of organisation (which would quickly crumble away unless upheld by and expressing some spiritual force), behind both military and educational discipline, lies the fundamental principle adopted by Scharnhorst's Committee on Military Organisation in Prussia in 1807: "All the inhabitants of the State are its defenders by birth." And this in turn was but the patriotic and military form of the moral obligation which Kant and Fichte impressed on the heart as well as on the mind of the Prussian people. In the galaxy of great thinkers and great statesmen, whose work it was to reform the government of Prussia or to pour new life into the ideals and culture of Germany as a whole,—Kant and Fichte, Stein and Hardenberg, Humboldt and Scharnhorst, Goethe and Schiller—we cannot point to one or other as solely responsible for the building up of any one department of modern German life. All were working at what was fundamentally one problem, and just as Kant helped to inspire the Prussian army, so did Scharnhorst indirectly help to fix the future organisation of the Prussian higher

* W. H. Dawson, *op. cit.* p. 108.

schools. No other nation, by imitating a little bit of German organisation, can hope thus to achieve a true reproduction of the spirit of German institutions. The fabric of its organisation practically forms one whole. That is its merit, and its danger. It must either be taken all in all, or else left unimitated. And it is not a mere matter of external organisation. In itself, elaborate organisation is apt to be mischievous and likely to do actual harm, unless it be constantly counteracted by the inner and almost unnoticed working of other forces in the national character. It would be useless to attempt to reproduce elsewhere, under other conditions and among very different national characteristics, any merely mechanical copy of German organisation, without regard to the living spirit which has animated or guided it. National institutions must grow out of the needs and character (and, not least, out of the weakness) of the nation which possesses them.

Coleridge, who drew so many of his ideas from German sources, gave a good definition of what may be regarded as the *ideal* of education in Germany. He said that the purpose of national education is "to form and train up the people of the country to obedient, free, useful, and organisable subjects, citizens and patriots, living to the benefit of the State and prepared to die for its defence."* I say the *ideal* of German education, for whether it will prove permanently possible to maintain this balanced combination of freedom and obedience, in citizenship, in moral character, and in intellectual culture, on which at bottom the whole German system rests, is a question which certainly admits of two different answers. It is possible that the balance may be disturbed by the growth, claims, and indirect results of the very commercial and industrial prosperity which it has done so much to produce. Commercial effort (unless held in check by loyalty to many other and higher obligations) tends to stimulate a kind of arrogant individualism which is opposed to the theory and practice of much of the present organisation of German life.

At present, however, industry and commerce are being materially helped by the German method of organisation. This was shown in a striking manner at the Paris Exhibition of 1900, where (according to the Report of the Royal Commission) the displays in the British Industrial Section did not, as a rule, compare so favourably as could have been wished with those of other countries. One great cause of this comparative failure on our part is found in the different attitudes adopted by the British and by other Governments. We still rely, in the main, on the voluntary system as sufficient to yield an adequate representation of the products of British industry. True to our former principles of State reserve, we preferred to "rely exclusively" (so far as the industrial section

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* S. T. Coleridge, *On the Constitution of the Church and State, according to the Idea of each* (London, 1830), p. 65.

went) "on the voluntary efforts of our manufacturers, and our exhibitors had to bear the whole of the expense which participation in an exhibition involves." The result was that large numbers of the chief firms stood aside altogether, having so much business already that they could hardly execute their orders. Many other Governments, however, (and the Government of Germany may specially be mentioned among them), took an entirely different view of their responsibilities. Their aim was to produce a display which should be representative of the very best work which their manufacturers could produce. To arrange such a display involved three steps—very large subsidies, a clearly-formulated aim in the planning of the exhibit, and the right of selecting what the collective exhibit should include. Other Governments, and notably Germany, cheerfully bore the expense and the responsibility of choosing the exhibits. Thus they acted, in a sense, as showmen of their manufacturers' best productions, bringing to bear on the task of selection a discriminating choice which all concerned seem to have regarded as the natural privilege of the Government of the country. Our proceedings were almost the exact converse of these, with the result that the Commissioners had regretfully to report that "the contrast between the orderly, symmetrical appearance of the foreign spaces in certain groups with the undignified collection of show-cases of different sizes and designs which filled the British space was little less than painful." And they conclude with these significant words:—

"We are of opinion that the voluntary system can no longer be relied upon to secure an adequate representation of British industry, and that in any future international exhibition in which it may be decided to take part, it will be necessary to have recourse to the principle of selection, which has been largely adopted by foreign Powers. This principle, which involves the payment of some of the expenses hitherto borne by exhibitors, would necessitate larger grants than it has been customary to give; but we think that, unless some approximation can be made to the expenditure of foreign Powers, no good purpose would be served by entering into further competition with them."

The Continental (and typically the German) exhibitor was organisable. The British exhibitor, on the other hand, seems to have resented and resisted any limitation on individual independence. On this point the Commissioners write as follows:—

"As a rule a British manufacturer will only exhibit if he can select his own goods and display them in his own way and in his own show-case. He is impatient of advice; he will not submit to dictation; he will not share his show-case with others; nor will he join with others to adopt a uniform plan of arrangement. For this reason it is exceedingly difficult to organise collective exhibits. We were strongly impressed from the beginning with the advantages which such exhibits possess. They save space; they avoid the duplication of similar objects, and in the case of many industries they ensure a higher level of excellence than any single firm can hope to attain. We endeavoured to persuade exhibitors to adopt the principle, but our efforts met with so little success that we had to abandon the attempt. In the few instances in which our recommendations were accepted . . .

the result amply justified our expectations; but, with few exceptions, the objection to combination, arising out of trade rivalry, proved too strong, and the experiment was tried on too limited a scale to have an appreciable effect on the section as a whole. We are none the less convinced that the best hope for the future lies in this direction, and in well-organised collective exhibits. . . ."

This contrast between our own country and the other great nations concerned is typical of many similar differences in other spheres of public effort, and not least in that of education.*

In a recent address to the members and friends of the Medical Graduates' College and Polyclinic, Mr. Balfour drew attention to another example of the present backwardness of England in the forward march of scientific inquiry and organised research. He put to his hearers, "in all solemnity and seriousness," the following question:—

"The growth of medical knowledge is surely one of the most remarkable scientific facts of the last half-century. . . . Can we honestly say that in this great development of medical knowledge and therapeutic science this country has taken the leading part which it ought to have taken? I speak in the presence of gentlemen whose names are of European fame . . . and I do not forget that in perhaps the two branches of medical advance which have done most to save human life and to diminish human pain—I mean the use of anæsthetics and antiseptic surgical treatment—this country may have a claim to have taken the lead. . . . And yet when I make an allowance for those great claims on the gratitude of the world which I think we possess, it remains the fact that, so far at least as I am able to judge, we cannot say that, as compared with Germany, or with France, or with Italy, we have done all that, perhaps, we might have done as pioneers of medical discovery. I may be wrong. It is only a personal opinion, given for what it is worth, but I fear that any investigator who set himself, in a perfectly impartial spirit, to examine the respective claims upon the gratitude of mankind of these great nations would not be able, in all honesty and fairness, to say that we had any claim to take the lead.

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* The British collective educational exhibit at Paris may be cited as a proof of the benefit of more direct initiative from the central Government, and of the selection of a representative exhibit. Never before had the chief branches of British education been so well or systematically illustrated at a foreign exhibition. The exhibit excited great interest among foreign students of education, many of whom had never before had an opportunity of seeing any such collection of documents, photographs, students' work, etc., illustrating British education in its various types and grades. But the exhibit could never have been got together without action from the centre, and unless a special grant had been made to enable the Education Sub-committee of the Royal Commission to carry out their plan. One feature of that plan was the appointment of an officer who should represent the Education Sub-Committee in Paris during the period of the Exhibition. Mr. Fabian Ware was appointed as representative, and not only devoted much labour to the arrangement of the collective educational exhibit, but was very successful in explaining to the numerous visitors and jurymen the meaning and relation of the various parts of the display. In the preparation of the different parts of the collective exhibit (which were selected from special exhibitions held in England, Wales, and Scotland some months before), the various educational authorities, societies, and institutions showed every readiness to co-operate in a work which they knew had been set on foot in the public interest and for the national credit.

Now, if that is so, do you not think that we—the public, the unprofessional and unscientific public—are in part to blame for that state of things? Do you think that we have shown a recognition of the duties which fall upon us in this matter? We are proud to say that in this country we leave to private enterprise and to private benevolence duties which in other and less fortunate countries are entrusted to the Government. (Cheers.) Yes, that is true, but if that policy is to be successful, you must have the private enterprise and the private benevolence, and have we shown the possession of those great qualities in this particular to the extent that we ought to have done? Personally, I grieve to say, I have no doubt as to the answer that should be given. I do not believe that any man who looks round the equipment of our universities, or medical schools, or other places of education, can honestly say in his heart that we have done enough to equip research with all the costly armoury which research must have in these modern days. (Cheers.) We, the richest country in the world, lag behind Germany, France, Switzerland, and Italy. (Hear, hear.) Is it not disgraceful? (Hear, hear.) Are we too poor? ("No.")—or are we too stupid? (Cheers.) Do we lack the imagination required to show what these apparently remote and abstract studies do for the happiness of mankind? We can appreciate that which obviously and directly ministers to human advancement and facility, but seem, somehow or other, to be deficient in that higher form of imagination, in that longer sight, which sees in studies which have no obvious, necessary, or immediate result the foundation of the knowledge which shall give far greater happiness to mankind than any immediate, material, industrial advancement can possibly do; and I fear, and greatly fear, that, lacking that imagination, we have allowed ourselves to lag in the glorious race run now by civilised countries in pursuit of knowledge, and we have permitted ourselves, to far too great an extent, to depend upon others for those additions to our knowledge which surely we might have made for ourselves. . . . The cause I plead now is not the cause of a party, nor of a nation, but the cause of mankind at large. Every discovery which is made in the laboratories in Germany, France, or Italy is the possession not only of those countries, but of the whole world. Let us not be backward in this great international competition, which surely may be said, in some senses, to balance with that yet more costly and destructive competition in armaments and, it may be, in commerce. Here, at all events, the interests of all nations are at one. Here there should be no undue rivalry, or, if there be, the only rivalry we should permit is what nation should add most to that scientific knowledge on which, more than on the efforts of statesmen, politicians, and soldiers, depends the future progress and happiness of mankind. These are feelings which I have long entertained, and have taken such opportunities as I could to express, but which, I think, are not sufficiently realised by our countrymen."*

The backwardness to which Mr. Balfour refers is evidently the result of a complicated variety of causes, some social, others educational, others administrative. No single remedy, still less scolding or panic, will put what is wrong to rights. It seems to be one of our national characteristics that, though we often produce great political and social movements (which indeed involve, if not new thoughts, at any rate strikingly new combinations of thought and a fresh attitude of mind), we are somewhat averse from forming organised schools of scientific thought. This is in striking contrast to the fact that in the sphere of science some of the greatest and most epoch-making names are those of individual Englishmen. There is the

* *Times* report, May 23rd, 1901.

same kind of contrast between the great individual names which England has given to purely speculative philosophy and the comparative absence of minor schools of English thinkers devoted to the laborious and methodical elucidation and advancement of the thoughts put forward by the master minds. On the other hand, in any branch of intellectual inquiry which has an immediate bearing on political or social movements, we seem somewhat to overcome our reluctance to forming schools of thought, and both in economics and in political philosophy our greatest thinkers have been followed by more or less organised forces working out the details of their ideas, much as the theories of a great scientific thinker are pushed to their detailed conclusions by the ant-like efforts of the workers in modern laboratories. Education is another study which appeals to us because of its immediate practical bearings, rather than because of its more scientific interests, though it is the latter which fascinate many German investigators. Dr. Arnold's theories were mostly implicit in practice, and, while his practical arrangements have been studied and developed by great numbers of English schoolmasters, comparatively little attention has been given by the latter to the theories underlying his work. But the result would have been very different if Dr. Arnold had been a German. His miscellaneous and social writings would have been made the starting point for a long succession of critical and historical commentaries. Or, to take another example, though generations of Englishmen have read and profited by Locke's *Thoughts concerning Education*, no school of English educators has ever laboured at Locke's educational theories as the Germans have laboured at Herbart's, and yet Locke's influence has been of determinative importance in the development of modern ideas of education. It is true that what has been well called "a trained impatience" is a healthy influence in national life, but are we not, as a nation, apt to be too impatient of the infinitely painstaking processes on which much of modern scientific advance depends? We have rarely applied the principles of the division of labour, or the methods of the factory system, to intellectual, as we have to industrial, matters. A sense of the dignity and value of abstract knowledge has never been so widely diffused among us as among the Germans or the French. A piece of original research seems to gain for a man more professional consideration in France or in Germany than it does in England. Yet "consideration" of this kind is, in no unworthy sense, part of the real wages of research. For a poor man to give up lucrative opportunities and to devote years to patient scientific inquiry means, relatively, a greater sacrifice in England than on the Continent. It is significant how many of our great thinkers have been men who happened to enjoy independent leisure. Our Government has reflected the prevailing opinion and has done, compared with the Governments of France or Germany, but little to endow the higher branches of learning. Nor do our great secondary schools produce many recruits for a life of learning as

such. A promising boy at a German gymnasium or in a French *lycée* probably thinks with much more veneration of the dignity of a university professor than would his counterpart at an English public school. In so far as this means that the English school boy declines to venerate "bookish" people, his attitude is creditable to his good sense. But the best professors are not bookish, and what is really at issue is the national respect for knowledge as compared with that shown for "practical success in life." Yet, English public opinion being what it is, can we much wonder that educational influences generally point in some other direction than towards a life of ill-paid and somewhat coldly-regarded "research," and that most young men of capacity find themselves virtually compelled to throw themselves quickly into "practical life"? It is unlikely that any mere change in school curricula would quickly, if at all, affect what is evidently a deep-seated tendency in the national mind. The present state of things is nothing new. We have not fallen away from an earlier state of national devotion to laboratory work. That, as a nation, we should be doing so little of it is doubtless to be regretted; and our reluctance to throw ourselves into the organised specialisation of modern science may perhaps entail serious consequences in the future. But everyone will admit that our system does produce, from time to time, really great scientific leaders, and that a very large proportion of the Englishmen who are "researching" are doing so because they love it and because they would not willingly be doing anything else. Very much needs to be done, and quickly done, to provide more inducements and better opportunities in England for advanced research. But it is to be hoped that, in this as in other departments of national life, care will be taken not to continentalise the English system of education at the cost of impairing those other forms of service to which we more naturally betake ourselves. Granting to the full that much of our neglect of scientific research is due to nothing more respectable than stupidity, idleness, and want of higher imagination; granting that the great wealth of England has so raised the standard of living that thousands of men with scholarly and scientific interests are working at professions or callings which "bring in money," rather than at more slenderly paid but higher investigations, because they are unwilling to be content with a way of life which would have to be much simpler than that of their friends and neighbours; granting that many who might, had they been so disposed, have reached distinction in science prefer to enjoy their independence in other ways; nevertheless is there not much which may justly be urged on the other side, and which should deter us from any too ready acceptance of the view that what the Germans have found best for them we should find best for us? Is there not, after all, a good deal to be said for the English idea that in a professional man shrewd judgment and qualities of heart and humour often matter far more than purely intellectual attainments; and that a lawyer or a doctor or a clergy-

man who combines adequate learning with deep insight into human nature and ready sympathy with human sorrow is, for many of the needs of life, a finer and greater man than some pale recluse of the library or some devotee of the laboratory, who has cut himself off from many human interests and may even, like Odin, have pawned his eye for knowledge?

The Continental system excels in producing both the expert and respect for the expert. The English system, when it excels at all, excels in producing a first-rate kind of common-sense, which is apt to be very impatient of the one-sidedness and want of all-round judgment which are sometimes characteristic of "experts." English people have an instinctive feeling that the expert does not really fit in with their view of life or with their notions of government. He is apt, they think, to be an incongruous element, and to embarrass plain men who know less than he does and yet have a private conviction that their judgment on the facts is shrewder than his. They regard him as prone to take a one-sided view of things, to press his hobby too hard, to misunderstand the relative importance of things, and to overlook factors in the problem which, though lying outside his special province, ought to be kept steadily in view whenever any part of the problem is under consideration. England, at heart, hates the expert; Germany rejoices in him. It is the paid expert control which so completely distinguishes, in its actual working, German municipal government from English, that almost all analogies loosely drawn from one to the other, are misleading. Paid expert leadership (not subordinate expert advice) is the key to the efficiency and economy of German municipal administration of the modern type, and this is only one of the social forces which render the career of an expert more attractive in Germany than here.

Yet is there not a great deal to be said on the English side of the question? We have always admired those forms of creative power which express themselves either in some artistic work of imagination or in (what is another kind of artistic and imaginative achievement) the building up of some great institution. Only those can do either who have the inborn power to do it. Education (using the word in its widest sense) can do much to train, refine, and discipline the inborn power. Still we have never seriously believed that mere school teaching can produce what is really original power. And it is clear that the creative faculty must be exercised and trained by *doing* things. Reading about them or hearing about them is not enough. Therefore we are in the habit of liking our national life to be so arranged as to allow as much freedom as possible for every gifted individual to express himself according to his inborn faculty. This means that we prefer untidy freedom to an immaculately neat system of restraints. We resent the idea of pressing boys or girls to learn a great deal at school. We believe in the value of a good deal of well-employed idleness during early years. Especially in the case of children with any sign of really original and creative power do we feel that compulsion to work along

conventional lines may have actually mischievous results. What from the scholastic point of view is idleness, may be, to certain gifted temperaments, a necessary part of education. It was a great poet, not a wastrel, who "as man and boy" had been—

> "An idler in the land;
> Contented if he might enjoy
> The things which others understand."

It is quite true that liberty of this kind is often abused, and that all truancy is not a sign of genius. But do we not at heart believe that it is better intellectually to sacrifice ninety-nine mediocrities, than to injure a single case of really original power?

This, however, is the converse of the German point of view. The German temperament seems to take much more kindly to school lessons than the English temperament has ever done. It seems also to be more rarely endowed with really creative power. It gets more out of itself under the steady and methodical discipline of organised and systematic study. Therefore it is inclined to favour a system of education which leaves little room for minor originalities, and which prefers to make as much as possible of the ninety-nine rather than to run the risk of sacrificing them to the hundredth. It is in the habit of attending school with much more regularity and spontaneous desire for instruction. It submits to elaborately devised and, to the English mind, tedious methods of teaching. It is more organisable, more easily kneaded into large lumps, more patient of permanent restraint. Each of the two temperaments has its merits, and each has its defects. But the same system of education does not fit both. What helps the one is apt to hamper the other.

And is there not the same difference between the typical German and the typical Englishman in their tastes as to the kind of social organisation into which they have to pass in later life? The Englishman likes to find himself among institutions, one or more of which he can mould to his own liking, or even reconstruct according to his sense of need. In what countless societies, clubs, councils, and other forms of free association the Englishman finds expression for his activities and for his love of trying to realise his own (and not some one else's) ideal of corporate life! In order that he may have the opportunity of exercising this faculty, he prefers as a rule to keep his institutions loose and plastic, so that at almost any point in them there may be room for some new development. He prefers, therefore, a rather wasteful but comfortable kind of freedom to a tidy but tightly-fitting organisation; and this preference affects nearly all his political and social institutions, both in the mother country and in the colonies. The German, on the other hand, can often feel free and happy under what to many Englishmen would be an almost intolerable restraint.

The English mind is usually slower than the German in point of intellectual apprehension, but it is often stronger in point of judgment. The Englishman seems naturally the more conscious

of the complexity of things. He is also often singularly inarticulate, and his inability to express all that he feels, or has an uneasy notion that he ought to feel, gains for him a reputation of muddle-headedness, which is sometimes undeserved. It is to be hoped that the more keenly intellectual training, which educational reformers are now prescribing for him, will not result either in his losing part of his natural sensitiveness to latent facts or in his becoming so preternaturally conscious of the complexity of human affairs as to lose his nerve and *insouciance* in action. Too much of a wrong kind of "education" might produce both these calamities. Mr. George Saunders, who has had exceptional opportunities of studying English and German characteristics, writes as follows:—"I find that the intellectual apprehension of the average educated German is at least, on a rough computation, ten times quicker than that of the average educated Englishman. On the other hand, in nine cases out of ten, I find the former's intellectual judgment most uncertain and weak, and often most conventional. In ordinary matters of judgment, it usually turns out that the Englishman has, perhaps unconsciously, been taking a much wider basis for his induction than the German has. The German has so persistently been taught the value of specialisation that he adopts a spurious kind of it in his ordinary judgments, and limits his field of vision quite unnecessarily. He is taught at school to form judgments on the strength of the facts submitted to him, and not to distrust their adequacy. Hence gifted Germans with international experience often contrast the hesitancy and care with which an educated Englishman expresses his views on any subject with the eagerness and rashness manifested by the majority of educated Germans in talking on any subject under the sun. The difference, I suspect, goes pretty deep." Psychological differences of this kind ought not to be overlooked in any comparison between the educational systems which are at work in the two countries.

At the present time, for various reasons, we see the German system in a rather favourable light. That system is economical, systematic, tidy, and calculated to promote a certain kind of welfare among great masses of people. It lends itself to the prompt adoption and skilful use of scientific methods. It is in unison with that phase of industrial and commercial development which led Count Tornielli to say on a recent occasion that "the selfishness and narrowness of commerce had given place to the association of national economic forces in powerful groups"*; and it is in natural sympathy with those tendencies in modern thought which are in the direction of collectivism, and which emphasise the claims of the "Leviathan" or State, rather than those of the individual citizen. But let us not forget that the system has also a dark side. It is inevitably repressive of much that is healthy and good as well as of much that is mischievous. Begun with the most excellent

* Speech at the Italian Chamber of Commerce in Paris, *Times*, June 8th, 1901.

intentions, and attended with many admirable results, it nevertheless ends by exacting a heavy price for economy and neatness of organisation. It cannot but prefer that people should conform to its pattern, rather than they should question the wisdom of its plans. Therefore it cannot be expected to favour arrangements which would encourage awkward individuality of character or varieties of political development. Yet does not progress depend on there being an incessant growth of new political and moral ideas cropping up over the whole surface of society, not simply in this or that little plot expressly set aside for such cultivation? Can any man, or group of men, so penetrate the future, or so divine the inner and secret workings of human life, as to be able to decide which ideas shall be allowed a trial and which must be suppressed as futile or perilous? Many of those ideas which have worked the greatest changes must have looked at first sight the least promising, were often the most obscure, and certainly proved the most repulsive to the established order. Incessant criticism of official patterns, and liberty to act in frank opposition to, or in competition with, what is authoritatively approved, seem almost necessary conditions for further progress. Yet if a highly-centralised State once gets a tight grip on the conditions of intellectual life, those who act on behalf of the State are apt (often with the best intentions) to discourage freedom of discussion and, what matters far more, freedom of social and educational experiment. We are apt to use the word "State" as if it meant the whole body of the people, but practically the word may come to mean, under certain forms of national organisation, the hierarchy which controls the machinery of Government. Such a hierarchy is bound, if only for reasons of administrative efficiency and of intellectual police, to dislike discussion rather than to provide opportunity for it. With a specially unfavourable eye would it be likely to regard persistent and puzzling variety of free, spontaneous experiment, because such a state of things would produce a sort of administrative chaos. It would probably be even more willing to tolerate from time to time some extravagant kind of criticism, because it would be rather to its interest that the alternative should seem to be between extreme State control and some form of social anarchy.

But, it may be replied, is there not special reason for effective State control of intellectual and educational developments at a time when the world is passing through so perilous a period of change in regard to the ideas which lie at the very foundation of social order and of national life? That is an argument which appeals to some minds far more strongly than to others, and which some may regard as decisive. It is possible that there are some nations which need, far more than others, the discipline and protection of severe State control at a time of almost bewildering confusion in intellectual and moral ideals. The German people has always been highly sensitive to changes in the intellectual atmosphere. It is apt to press new ideas to extreme conclusions, not only in theory but in practice.

A *régime* of rather stern control may be regarded by many thoughtful Germans as a necessary preservative against the more disintegrating tendencies of much modern thought.

But it would not be well to conceal from ourselves the fact that, even for Germany, such intellectual control has its bad side as well as its good. One of the prime causes of German greatness has been the intellectual freedom of its universities. But in recent years that freedom has been significantly threatened by the State. In no sphere of thought is so much inquiry needed (and, therefore, so much free discussion desirable) as in that of social economics. But it cannot be said that all the members of German universities are free to develop their theories as to social economics in whatever direction they please.

There is no doubt that German methods of social and educational organisation have enabled dexterous and profitable use to be made of German science, and that they have prevented a great deal of intellectual effort from running to waste. But some amount of waste is inseparable from freedom of intellectual and social development, and it is on the latter that the welfare of the world largely depends. Much of the striking progress made by German industry and commerce seems to have depended on a fortunate conjunction of several things, viz.,—(1) the results of a long period of disinterested research; (2) the fact that German commercial development happened to be at a stage when it was still plastic and especially able to derive help from the wise application of State aid; (3) the enjoyment of great intellectual and moral prestige by a highly organised form of government, based on resolute discipline and on universal military service. But it is questionable whether this conjuncture will prove to be permanent. Science itself can be injured by the predominance of material aims; and commerce, as it grows, is apt to become more and more restive of State control, and even of some of the claims of purely national interest. But in any case the results of the present profitable conjuncture should not be traced to the methods of social and educational organisation alone. Those methods are only one of the factors in the case. The great spiritual and intellectual tradition of Germany has counteracted much that is inherently mischievous in any kind of extreme State control. But, as a well-informed writer has recently remarked—

> "Germany has paid a heavy price, not only for her military supremacy and political unity, but also for her intellectual and commercial equipment. In the realm of higher ideals, where once she was at home, she is now, according to the complaints of her own critics, a comparative stranger. In spite of the materialism of money-making and of excessive athletics in England, English life is broader, fuller, and more hopeful in its aims than German."

It would be a great mistake, however, to exaggerate the depth or the permanence of the materialistic tendencies which have affected parts of German thought and practical endeavour. There are nearly always two currents of feeling in national life, running in opposite directions, but each compensatory and corrective of the

other, and both due to some disturbance of the underlying conditions on which the social order hitherto existing has been based. Already there are many signs of an earnest and powerful reaction in Germany against any kind of blatant disregard of higher and more disinterested aims in education and in thought. In a memorandum, prepared before the meeting of the conference on Secondary Education held in Berlin in June, 1900, Dr. Ziehen, Director of the Wöhler-Schule (Realgymnasium) at Frankfurt-on-the-Main, deplored the too utilitarian tendency of some of the more extreme advocates of modern language teaching in secondary schools.* Professor Harnack has raised an eloquent protest against its ever being forgotten that twice in German history (*i.e.*, in the time of the Renaissance and again at the beginning of the nineteenth century) Greek studies accompanied and furthered a great spiritual revival, and helped to rescue German thought and feeling from dreary formalism, from scholasticism, and from lifeless Rationalism.† Professor Pfleiderer, in a recent paper, dwelt on the dangers involved in "a mechanically materialistic interpretation of history, rejecting all spiritual forces," but expressed his conviction that no such interpretation "would ever erase the ideals of humanity."‡ And, nearly twenty years ago, Friedrich Nietzsche gave utterance to his bitter scorn of commercial ambitions in words which are likely to find extravagant acceptance in many minds, if mere profit-seeking is ever set up as an idol of German education. "Everything that is great happens far off from the market. . . . Far off from the market dwell those who are discovering new things of value. . . . Where the market begins, begins the buzzing of the poisonous flies."‖

The strength of German education lies in its great tradition of disinterested devotion to knowledge; in the self-sacrificing labours of the teachers; in the cultivated interests which distinguish so large a proportion of German homes; in the strong personal interest which parents take in the intellectual progress of their sons; in the "plain living and high thinking" which have fostered through so great a part of the German nation a reverence for learning and a readiness to make personal sacrifice for ideal aims; in that "inner freedom of soul, that profound harmony of all the faculties" which Amiel said he had so often noticed among the best Germans; and in "the infinite capacity for taking pains" which (whether innate or the result of a long tradition of educational discipline) is characteristic of so many German minds. The perils of German education lie in the machinery of its State control; in the national tendency to fall into

* Verhandlungen über Fragen des höheren Unterrichts (Halle a. S 1901), p. 345–6.

† *Ibid.* p. 276.

‡ Paper on "The Religious Crisis of our Age," read at the International Council of Unitarians and other Liberal Thinkers and Workers (London, May 31st, 1901), *Times* report.

‖ *Also sprach Zarathustra*, Part I. p. 73.

extremes of opinion; in the fact that professional advancement depends on certain kinds of school training; in the rapid growth of wealth, which has already removed many of the old incentives to effort; and in the temptation to sacrifice higher educational aims to the desire for commercial success. It would be a misfortune if, through alarm as to our own commercial future, we were to copy what is hurtful in German education, and to neglect those deeper and harder things which have really made it great.

In a conversation with Mr. Beatty Kingston, in 1872, Prince Bismarck said, "You English should not be so hot to imitate Germany. Nations that imitate do not do much good. . . . Nations should keep their individualities. The system that suits us does not suit you, your habits, or your character. . . . You have your England ready to hand. . . . Take care that you do not spoil your people." * The real value of the comparative study of institutions lies, not in the discovery of devices or appliances which can be transferred from one country to another (though the frequent possibility of such a transference should not be ignored), but in realising what is the spirit which has made a foreign institution great, and then in finding means to cultivate that spirit at home, if so be that it is needed to repair some weakness in the national life. Great institutions can rarely be transplanted, but one country can catch from another something of the spirit and purpose which animate every great institution. And such spirit and purpose will naturally find expression in very different forms of organisation in different countries. Prince Bismarck felt this strongly, and we are told that "nothing in his career angered him more than to meet people who wished to transplant English institutions promiscuously into Germany."†

The root of the matter is that in Germany there is a much stronger and more general love of abstract knowledge than there is in England. Professor Perry, speaking last autumn as President of the Institution of Electrical Engineers, said that "there was one qualification which an electrical engineer must have, and without which all others were useless—he must love to think about and work with electrical things, not liking them simply because of the money he could make through them, or even because of the name he might make before the world."‡ That is the first essential of all scientific work and the secret of all scientific enthusiasm—love of the thing for its own sake. From this there follows a readiness to talk about it, a keen and constant interest in learning more about it, a habit of keeping it always in mind and seeing everything in relation to it, and it in relation to everything. This strong artistic interest in the study as a study puts to flight any silly shamefacedness

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* *Conversations with Prince Bismarck*, collected by H. von Poschinger; edited by S. Whitman, p. 103. (London, 1900.)

† *Ibid.* p. 228.

‡ *Times*, November 9th, 1900.

which might otherwise prevent a man from alluding to his own special sphere of work and thought. The reverse is the case when the maxim "No 'shop' at mess" has the effect of discouraging scientific professional studies at other times as well. The influence of keen and general interest in the scientific bearing of every part of a great calling may be felt throughout the whole of a profession and, extending far beyond the limits of a single profession, may in time affect the tone of national life. This has happened far more in Germany than in England. And America is wisely following the German example.

The love of knowledge leads to a clearer sense of its value, and this again to a greater capacity for skilfully applying knowledge and to a readiness to submit to those severer kinds of educational discipline which are the necessary preparation for knowledge. Sir Christopher Furness, referring to the United States Steel Trust and its possible effects on British trade, said "It seems to me that there is only too much truth in the contention that our managers of works do not sufficiently encourage the study of technical subjects; that there is a tendency to give preference to less intelligent 'rule-of-thumb' men; and that our managers are not alive to the scientific requirements of the age and to the great advance made by America and Germany."* Another leading man of business, Sir A. L. Jones, of Liverpool, has recently referred to another matter closely connected, both as cause and effect, with the facts pointed out by Sir C. Furness.

"At one of our establishments" [he writes] "I employ some 250 clerks, and it is always a great sorrow to me that so small a proportion of the rising generation seem to be imbued with any real conception of what is necessary to success and the earnest assiduity necessary to accomplish it. It is here that we are likely to be most easily surpassed by young men of certain other nationalities. . . There are countless young fellows, one discovers, who are quite content to go through a certain amount of routine in a haphazard way, but are apparently unable to realise that commercial prosperity and success are only attained by making exceptionally good use of one's time, and more especially in one's younger years, when one's power of concentration is more acute, the mind is more receptive, and the memory has a greater faculty of retention."†

Mr. Thomas F. Blackwell (Chairman of the Council of the London Chamber of Commerce), writing on the same subject, remarks‡:—

"There is need for the younger members of the commercial community to give more concentrated attention to their business. At present their interest is too much devoted to amusements, and they are too anxious to leave their offices and workshops for cricket, tennis, football, and golf; and though fresh air and exercise are necessary for hard work, the clerks and workmen of to-day show too much interest in their pleasures and too little concern for their daily task. The men who made and extended English trade gave their whole time and interest to business in the same way that Germans and Americans do to-day."

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* *Daily Mail*, May 1st, 1901.
† *New Liberal Review*. March, 1901. p. 961.
‡ *Ibid*

It is of course far from being my meaning to suggest that absorption in business as business is in itself a very worthy form of life, or to imply that the best hope for the future of the world lies in each nation in turn applying itself with an intenser form of concentration to money-making in order to excel "its rivals." If that were the only prospect, there would be a good deal to be said in favour of slacking off and enjoying as much as possible of leisure and outdoor exercise so long as things allow. Nor must it be forgotten that the circumstances of life in large cities, and the great distances which many workers have to travel from home, have greatly changed the conditions of the problem. And it is often much harder now than it used to be before the growth of large joint-stock businesses, for a young man to find an opportunity of rising, *fairly early in life*, to a position of great responsibility or of masterhood. Many young men seem to see before them an almost interminable vista of subordinate clerkships with small annual increments of salary. Feeling that there is very little to be gained by extreme application to business out of hours, they prefer to "play for safety," to be on good terms with their companions, and not to excite the jealousies which are often aroused when marked and exceptional zeal is shown by a subordinate. But things would be very different if it were more the fashion in England to take an *intellectual* interest in business. Much depends on the attitude of managers (not merely of the heads of firms) and on the public opinion inside a business house. Hundreds of young men would develop a keen interest in their business if it were more the "thing" to study it, and if it were more generally the case that the tone of the house favoured such studies. At present much of the interest which might find a natural and pleasant field of exercise *within* the business (to the great profit of the business, too) goes to things outside the business. Everyone will approve the habit of taking healthy exercise in the way of games, but something besides love of exercise must account for the fact that one hundred and fifteen thousand persons paid for admission to the Crystal Palace this year to see the final game for the Association Cup. In the prospectus of an Anglo-Swiss school for boys, written in French and English in parallel columns, a correspondent found that "the English was an exact translation of the French in all but one significant point. *Cours commercial* had been ingeniously rendered 'large playing field'—I suppose those who drew up the prospectus knew that Swiss and English parents respectively love to have it so."*

The late Bishop Creighton, in an address prepared for the Midland Institute at Birmingham, touched on the national characteristic which we are now finding so inconvenient in many of its practical results.

"To put it briefly," he wrote, "my opinion is that the great defect of England at present is an inadequate conception of the value of knowledge

* Rev. A. T. Bannister, in *Times*, May 1st, 1901.

in itself, and of its importance for the national life. I wish to see this remedied, and it cannot be remedied till it is recognised. It will not be amended by improvements in our educational system; for systems are only so much mechanism, and depend on the force which works them. If there is a desire for knowledge, it is not difficult to find out proper means of imparting it. If there is little effective desire for knowledge, the invention of easy means for imparting a beggarly minimum will check rather than promote the desire.

"When I say that in England there is an inadequate conception of the value of knowledge, I do not mean that England has ceased to produce eminent men in the various branches of learning, or that it does not recognise them. Knowledge will always have its votaries among a vigorous people, and its claims will never be forgotten. What I mean is that the average Englishman thinks very little of the importance of gaining for himself as much knowledge as he can for the purpose of leading his own life efficiently. If you are inclined to demur to that statement I would ask you to consider what are the qualities on which Englishmen pride themselves. You know the familiar list—vigour, energy, practical capacity, dogged perseverance, outspokenness, straightforwardness, and the rest. These are all excellent qualities, but you will observe that they are all practical and not intellectual. They omit all reference to thought and its processes, to knowledge and its reward. The point of view towards life which they indicate is briefly this: That must be done which shows itself to need doing; the choice of means to do it is of secondary importance; the great thing is to set to work to do it, and do it hard with the determination to succeed. . . . I take it that the average German would put knowledge and assiduous application in the forefront of the national qualities of which he was proud. His attitude towards life would be that knowledge was first necessary to show you what you could best do; then, that the constant application of that knowledge and its assiduous increase would lead you to such success as you deserved. . . . The English view makes the least appeal to the intellectual qualities. I think you will agree with me that we must bestir ourselves to put knowledge back into its due place among objects of pursuit. . . . We must be prepared to add to our store of capacity, and I see no way to add to it except by increasing our knowledge. Let us do all that we have done; let us keep our existing qualities; but let us add to them that which increasing knowledge can bring. This knowledge cannot be stored at the top only; it must be diffused through every part of our common life. We need not only the scientific inventor, but the employer who is quick to perceive and apply what has been discovered, and the workman who can so far understand its utility as to wish it to have the best possible chance."*

But an increased love of knowledge is not easily conjured up in such a way as to permeate the mass of public opinion, and thus to modify the intellectual atmosphere in which the various forms of educational, professional, and commercial life are carried on. Such a national respect for knowledge is a matter of slow growth. It represents untold sacrifice in the past, and only sacrifice can win it. Once fairly started, it makes its way, and German and French experience, not to speak of that of other countries, proves that a good deal can be done to further its growth (when that growth has once begun) by means of educational organisation; by making entrance to professions dependent on completing the full course

* *Contemporary Review*, April, 1901, "A Plea for Knowledge."

at an approved kind of school* ; by making the teaching profession one branch of the Civil Service and thus securing the individual teacher from all the financial anxieties attendant on school-keeping by private enterprise; and by requiring, in the case of every teacher, a high level of general attainment, if not also of proved professional skill. But all these forms of State organisation (which have both bad and good results) depend on a definite acceptance by the nation, or at least by an overwhelming majority of its citizens, of a clearly-formulated national aim. And this it is which, both for good and for evil, England has not had for many generations. Furthermore, such an aim cannot be carried like a resolution at a public meeting. It must be the outgrowth of a long process of national thought and experience—sometimes of national agony. Yet even that terrible experience does not necessarily ensure national unity with regard to the spiritual and intellectual things which lie at the base of national life. It may but serve to reveal, more clearly than before, a deep fissure in national ideals. And (if I may touch on a matter which seems to me to lie very near the heart of the whole difficulty) can it be said that the present phase of intellectual development in the world is likely to win over to the cause of knowledge a nation which seems almost constitutionally averse, in the mass, from organised intellectual pursuits? Across how many avenues of thought is there written at present the warning "No thoroughfare?" Is there not now an instinctive shrinking on the part of many minds from embarking on intellectual difficulties, from which they feel that they could hope to

* It is noteworthy that Adam Smith, whose practical influence was unfavourable to the encouragement of higher education by the State, held that "the State might render the study of science and philosophy almost universal among all people of middling or more than middling rank and fortune; not by giving salaries to teachers in order to make them negligent and idle, but by instituting some sort of probation even in the higher and more difficult sciences, to be undergone by every person before he was permitted to exercise any liberal profession, or before he could be received as a candidate for any honourable office of trust or profit. If the State imposed upon this order of men the necessity of learning, it would have no occasion to give itself any trouble about providing them with proper teachers. They would soon find better teachers for themselves than any whom the State could provide for them."—(*Wealth of Nations*, Bk. V., Chapter I.) Later experience has not confirmed the latter and more sanguine part of Adam Smith's opinion. By his opposition to State endowment of higher education he rendered nugatory the other part of his plan, which, if carried out, would probably have established in England the same kind of system of intellectual training that was developed during the last century in Germany. But, as Adam Smith frankly stated that his reason for desiring the establishment of "the study of science and philosophy" in this commanding position was that they were "the great antidote for the poison of enthusiasm and superstition," and that "when all the superior ranks of people were secured from that poison, the inferior ranks could not be much exposed to it," those who differed from him fundamentally as to what was "superstition," and as to the value of "enthusiasm" (calling each by a very different name) cannot be blamed for having been unwilling to adopt his prescription.

find no issue, but amid which they fear that many of their dearest hopes might come to dismal shipwreck? Is not the English mind frequently strong both in its gasp of immediate facts and in its instinct as to the bearing of those fundamental principles which govern ideals of conduct but often lie outside the reach of exact verbal expression? And how often does it not happen that, with this combination of practical sagacity and of almost mystical insight, there goes an inability to excel in the intermediate sphere of thought, namely, in the region of logical analysis and abstract generalisation? * But this is the region to which speculative thought necessarily addresses itself, and it is exactly here that so many of the operations of scientific reasoning are carried on. A more natural aptitude for abstract thought (by no means unfrequently accompanied by a far less sensitive perception of the "master-light of all our seeing") characterises the German mind, and has been the cause of a much more general training of the philosophical interests there than here. The ordinary educated German or Frenchman is far more at home than the Englishman in the sphere of abstract ideas. The Englishman has gained much, and has also lost much, by this lack of aptitude for abstract reasoning. At present we are seeing how much he has lost, and is likely to lose, by reason of this mental characteristic, just as we are also seeing how much he is in danger of losing by reason of his insularity and individualism. Novalis said that "Every Englishman is an island." But insularity and individualism are exactly the qualities which, under other conditions, have favoured the Englishman. Have there not been, more than once, conditions of human thought when Englishmen have gained much, and preserved much that they might otherwise have lost, through keeping for a time outside the meshes of intellectual speculation? Has it not, in the course of history, proved more than once a gain to civilisation that England should have held herself rather separate from the current fashions in Continental thought, thus keeping fresh and free to take her place in the European movement at some later stage? It was said, not of one of our worst times, that

> "I' the world's volume,
> Our Britain seems as of it, but not in it."

Yet a great change has come over the whole aspect of things in consequence of the advance of science. Scientific method, applied to all the undertakings of men, is, as Professor Huxley said in 1894, the "white ant" which is eating away the old conditions and the fortifications of the old order. No nation can stand aside from this world-wide movement, which is applying new and searching tests to whatever is customary and traditional. The habit of abstract reasoning, and strong interest in intellectual pursuits, have become necessary conditions for entering into possession of that fund of

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* *Cp.* Mr. Bernard Bosanquet on "The English People," in the *International Monthly*, January, 1901.

knowledge, and for acquiring that sense of the value and significance of knowledge, which have become indispensable to every great nation in this age of scientific organisation and research. Practical necessity is driving Englishmen to the conviction that a far greater proportion of the nation than heretofore should be so trained at school as to take an active intellectual interest in things, and quickly to discern, and, when necessary, counteract new tendencies in economic and ethical opinion.

Some are likely to feel that any such great change in our intellectual life would imperil much that is most valuable in English judgment. The instinctive dread of this risk—perhaps a well-founded dread—seems, in point of fact, to be one of the causes which has done most to hold us back from going with the rest of the world in educational reform. But has it not become absolutely necessary for us to go forward quickly, lest we should drop dangerously behind? We cannot afford to say *nec vitia nostra, nec remedia, pati possumus.* And mere imitation of current intellectual fashions is the last thing which would be the aim of an education really characteristic of Englishmen. Do we not need to gain more power of expressing, to ourselves and to the world, what we instinctively feel to be the points in which our national attitude towards the problems of life and conduct differs from that of most of the other nations with whom we deal? English thought and action are apt to aim at a reconciliation of contraries; at the combination of apparently converse tendencies; at the rejection of each extreme, if taken by itself. Such an aim needs constant revision in the light of new knowledge and of the changing relations between man and man, and between race and race. Liberal education will help us to find confidence in, and expression for, what Pascal called "the union and harmony of two seemingly opposite truths."

But, just as in England we need to strengthen the intellectual side of our system of education and of our national life, so in Germany there are signs of the converse tendency and of a growing opinion that their school system and its accompanying forms of State control have over-developed the purely intellectual side of things, and have failed to do what is necessary in regard both to physical training and to character-building. Germany and England stand in some respects at different ends of the scale, and each needs to move in an opposite direction in order to reach the mean. But it is one thing to feel the need of such a change and quite another thing to accomplish it. Each system has the defects of its qualities. And each is forced forward along the old lines by the momentum of the past, by the force of vested interests, and by the natural unwillingness of the rising generation (and of their parents) to incur the risk involved in standing aloof from the routine of higher education prevailing in their respective countries at the present time. In Germany, however, the results of standing aside from the esta-

blished system of education are much more serious than they are in England.

There is at the present time much unrest in German opinion on the subject of secondary education. What is most significant in this unrest is that it is due, as in France and elsewhere, to the growing urgency of grave social problems and to the conviction that the great changes which have come over modern life and over international relations call for some corresponding changes in the courses of study required in secondary schools, and also for a new spirit in this important part of national education. The effects of this unrest show themselves in animated debates on questions of curricula, time-tables, and methods of teaching; but its real causes lie far below the level of merely administrative regulation or of pedagogical contrivance. They are ethical, social, and political rather than "educational" in any narrow sense. But they necessarily show themselves in the form of inflammation of parts of the school system, because national education is always an expression of what are or have been the ethical, social, and political aims of the people which it serves.*

The discussions about secondary education in Germany raise a great number of issues, the more important of which may be classified as follows:—

(1) How far does the present system of secondary education favour, or obstruct, the growth of social unity or of social equality? This point raises the question as to the junction between elementary and secondary schools.

(2) Are classical studies artificially protected by the present system of school privileges? Is it desirable to make sweeping changes in the courses of study, and to aim at replacing classical education of the older type by some form of non-classical education? This raises the question of Latin and Greek, and of the place of French and English and of science in the course of instruction given in secondary schools.

(3) Do the secondary schools take sufficiently into account the needs of practical utility? Ought the courses of study to be reformed with the frank intention of meeting the practical requirements of modern business and of modern government? This raises questions of national aim and of the value to be assigned, in a general view of national well-being, to material wealth and commercial prosperity as compared with pre-eminence in intellectual studies and with devotion to learning for its own sake.

* On the social and ethical issues involved in many of the problems which at present are prominent in discussions on German education, see Rudolf Lehmann, *Erziehung und Erzieher* (Berlin, 1901); Professor Dr. W. Münch, *Ueber Menschenart und Jugendbildung* (specially Chapter X.) (Berlin, 1900); Professor Dr. Paulsen, on *Die Wandlungen des Bildungsideals in ihrem Zusammenhange mit der sozialen Entwickelung* (Comenius-Blätter, 1899); Dr. Reinhardt, on *Die Bedeutung des gemeinsamen Unterbaues für die höheren Schulen* (Comenius-Blätter, 1899); Paul Natorp, *Sozialpädagogik* (Stuttgart, 1899); Professor Dr. W. Rein, *Am Ende der Schulreform* (Langensalza, 1893).

(4) Is it the tendency of the whole system of secondary and higher education in Germany to over-stimulate the desire for academic culture, and to divert, to an undue degree, the brain of the nation from practical callings to more literary occupations? Some Germans think they have too much secondary education, just as some Englishmen think we have too little.

(5) Are the results of the system satisfactory in regard to the formation of character, and do the German secondary schools fail in giving an all-round physical training? Under this head there is a disposition to look, with much more interest than was shown twenty years ago, into the results of English public-school education.

(6) Is there enough elasticity in the organisation of secondary education in Germany? Should much more freedom of experiment be allowed? If so, how can such freedom be combined with the present State regulations for the admission of students to universities, technical high schools and liberal professions? Has the law as to "military service for one year as a volunteer" injured the interests of higher education—(1) by attracting an undue number of boys to secondary schools in order to win the privilege of so serving, and (2) by causing an exodus of boys from school at a point two-thirds through the full course of those secondary schools whose curriculum is designed to cover a period of nine years? Some of these questions are of course almost the converse of those often asked in regard to English secondary education. One distinctive mark of the latter, as compared with its counterpart in France and in Germany and on the Continent generally, is its freedom from close State control.

(7) Does the experience of the last few years confirm the hope that the experiment known as the "Frankfurt curriculum" may provide a satisfactory solution of the difficulty which presses on so many smaller towns, viz., how to maintain concurrently the different types of classical and non-classical schools which are normally required by the different needs of different callings? This point raises the question as to the age at which Latin or Greek ought to be begun, and whether in the early years of a fully classical education the study of French should precede Latin or that of Latin precede (as at present) the study of French.

It will thus be seen that all the more important questions, which underlie the present movement of opinion on the subject of secondary education in England, are under discussion in Germany also. In fact the problem, though it has special aspects in each country, is really an international one; that is to say, it is not only perplexing all the leading nations, but it arises in large measure from the new relations in which different peoples stand to one another, and from the facts that (owing to the practical shrinkage of distance through improvements in the means of communication) the commercial and political interests of different peoples are becoming more intermixed, and waves of opinion and of intellectual or social change are much more rapidly transmitted than heretofore over

the whole world. The result is that secondary education, always sensitive to changes in the intellectual atmosphere, is in many places almost in a feverish state.

At this point, however, a few words are necessary in order to summarise the main features of the present organisation of German secondary schools.* For the sake of brevity and clearness I will take Prussia as the type, reminding the reader, however, that there are various differences between the secondary school systems at work in different States of the German Empire. These varieties have been, and are, a great source of strength to German education.† The system of Baden, in particular, may be cited as specially full of valuable suggestion.‡ But the Prussian system is on a much larger scale than that of any other single German State, and has been the focus of a much more extended and varied debate, and therefore of a more interesting literature. Moreover, the unity of the German Empire has naturally brought about a greater assimilation between the systems of secondary education in the different States; and in the accomplishment of this unity the Prussian schools played no inconsiderable part. A recent French writer has expressed the opinion that, of all German States, Prussia has come nearest to perfection in her school organisation, and that her achievement is due to the fact that, in the sphere of education as of politics, she has known how to utilise the results of individual effort with the utmost foresight, energy and persistence, and at the same time to encourage all kinds of individual initiative.¶ I cannot, however, concur in the judgment that Prussia has in point of fact encouraged *all kinds* of educational initiative. It would indeed have been contrary to her express purpose to do so. Any conclusions as to the merits of Prussian secondary education must largely depend on our view of the general principles underlying Prussian State organisation. But all will agree that, *granted the aim in view*, Prussia has shown an unrivalled concentration of purpose in devising a consummately efficient machine to produce the intended result. It is doubtful, however, whether that result is not considerably different in some important respects from what

* For a detailed account of the system the reader is referred to *Special Reports on Educational Subjects*, Vols. I. and III.; to Dr. Russell's *German Higher Schools* (Longmans: New York and London); and to Professor F. Paulsen's *Geschichte des gelehrten Unterrichts auf den deutschen Schulen und Universitäten*, Second Edition (Veit: Leipzig)—the last-named being a book to which all foreign students of German higher education are deeply indebted.

† *E.g.*, The Saxon Secondary Schools never had the Abschlussprüfung, which is now to be abolished in the Prussian Secondary Schools.

‡ See Mr. Hammond's paper on *The Higher Schools of the Grand Duchy of Baden, their Development and Organisation*, in Vol. III. of *Special Reports on Educational Subjects*. (London, 1898.)

¶ A. Pinloche, *L'Enseignement Secondaire en Allemagne*. (Paris, 1900.)

was in the mind of Wilhelm von Humboldt and other founders of modern Prussian education.*

(*a*) There are in Prussia three main types of secondary school—the fully classical, the semi-classical, and the non-classical. The first of these (the Gymnasium) requires all its scholars to learn (of course in addition to many other subjects) Latin and Greek as well as French. The second type (the Realgymnasium) teaches Latin, French and English, but not Greek. The third type (the Oberrealschule) teaches French and English, but no Greek or Latin. Each of these three types of school has a very carefully designed course of instruction which is planned to extend over *nine* years. There are also three sub-types of school (classical, semi-classical, and non-classical), each with a course of instruction planned to extend over *six* years. The course of the Progymnasium corresponds to that appointed for the first six years of a Gymnasium. The course of the Realprogymnasium corresponds to that appointed for the first six years of a Realgymnasium. The course of the Realschule generally corresponds to that appointed for the first six years of an Oberrealschule. Of these sub-types of school, the Progymnasien and the Realprogymnasien are comparatively unimportant. But, in point of numbers, the Realschulen with their six years' course are more important than the Oberrealschulen with their course of nine. It may be added that school fees are comparatively small, but that the secondary schools are not free.

(*b*) The new curricula, which were approved for the Prussian Higher Schools, in April, 1901, will be found in full in the appendix to this chapter. Here it will suffice to say that, according to the normal curriculum, Latin is begun in the Gymnasium and Progymnasium in the lowest class (*i.e.*, at nine years of age), French two classes higher (*i.e.*, at eleven), Greek a class higher still (*i.e.*, at twelve). Much attention is paid to instruction in the mother tongue. All boys learn some elementary science, but at no point do the lessons in natural science absorb more than one-sixth of the weekly lessons. In the Realgymnasium and Realprogymnasium Latin is begun in the lowest class (*i.e.*, at nine years of age), French two classes higher (*i.e.*, at eleven), and English, a class higher still (*i.e.*, at twelve, or at the same point at which a boy in a fully classical school begins Greek). Here, again, much is done for the teaching of the mother tongue. All boys learn natural science, but never more than one-sixth of the week's lessons are given to it. In the Oberrealschule and Realschule, French is begun in the lowest class (*i.e.*, at nine years of age), and English three classes higher (*i.e.*, at twelve). Full provision is made for systematic teaching in the mother tongue. Natural science is taught all through the school (and in the four highest classes of the Oberrealschule) nearly one-fifth of the week's lessons are given to scientific subjects.

Other forms of curriculum are permitted under approved con-

* *Cf.* on this point Dr. Paul Cauer's *Staat und Erziehung.* (Kiel and Leipzig, 1890.)

ditions, as will appear below, but the normal arrangements are those described above. Increasing freedom, however, is being permitted in German secondary education.

(*c*) It will be seen that the basis of Prussian secondary education is linguistic discipline. No secondary school in Prussia is allowed to make laboratory or other work in natural science the backbone of its curriculum.* Drawing is taught in all the schools, but there have been no developments in the direction of making various kinds of manual work and of practical constructive training the centre of the curriculum. In a word, the Prussian secondary schools are required to adhere to what, in spite of its modern dress, is the old tradition of a literary education. Some of the most original and revolutionary experiments in secondary education are not being made in Germany at all. Prussia holds firmly to the old principle that linguistic discipline is the best capacity-*sifter*. Whether it is so or not depends on the type of capacity and the range of knowledge which the State desires to encourage and to secure for the higher functions of national life. Those who believe that some valuable and necessary types of skill and power are best developed by manual and practical exercises of various kinds (literary discipline taking a subordinate place in the curriculum) will regard the German system of secondary education as far from an ideal capacity-*catcher*. It is bound to pass over, or to spoil, many whom they would regard as well-endowed by nature for the most responsible kinds of public service. Moreover the prestige of a great linguistic system of education affects people's unconscious standards of judgment. And "protective mimicry" is a force in the sphere of education as well as in other parts of nature. But those who are convinced that, on the whole and with few exceptions, linguistic discipline is the surest (as well as the cheapest) instrument for selecting the quickest and cleverest brains, will find in the Prussian system a well-thought-out and admirably effective method of securing a capable succession of men for the service of learning and "for the use of the King." It should not be forgotten, however, that the present supremacy of a linguistic education is challenged by many powerful enemies. Prussia, it may be said, has put all her eggs into one basket. Needless to say she has packed and sorted them with the utmost skill. But the fact remains that the whole system is adjusted to one general end—the high development of certain types of mental power through varied processes of training predominantly literary in their character.† The system leaves very

* The Royal Decree of November 26th, 1900, directs that in future practical demonstration and experiment must take a more prominent place in the teaching of natural science in Prussian secondary schools. It also directs that, in the classical schools, all pupils who intend to proceed to the study of applied science, mathematics, or medicine should make constant use of the optional instruction in drawing.

† It should be mentioned, however, that the physical and other exercises of military service play an important part in German education, and correct many of the school tendencies.

little liberty for the compensatory growth of quite other kinds of training. Yet it is often through these temporarily unfashionable or neglected kinds of training that new and much-needed types of character are formed. It was a German (Friedrich Nietzsche) who said the bitterest things about the "Country of Culture."* He called it "the home of all paint-pots," and said that he would rather be "a day-labourer in the under-world and amid the shades of long-ago" than dwell in it. Those words were written in 1883. In the same year our own Richard Jefferies published *The Story of My Heart*, in which he too pleaded, as poignantly as Nietzsche but with far less bitterness of spirit, against erudition as an ideal of life, and still more against the imparting of erudition as a means of "education."† Are there not indeed many other things to be taken into account in framing an "educational system" besides what will produce the kind of material likely to be most immediately profitable to the political, commercial, or industrial interests of the State? Should we not also regard the increase of individual human happiness as one most necessary aim? Granted, of course, that due precautions must be taken to secure the civic virtues and self-sacrifice which will best defend the communal life. But, if this be allowed for, is it not the chief task of any true "system of education" to develop individuality and variety of aptitude, interest, and character, and to keep open as many doors as possible for new and as yet unforeseen developments? For those who love the study of language and of literature, and to whom books and conversation and study are the most natural means of self-culture, these linguistic schemes of education are appropriate and beneficial, provided that they do not involve over-pressure and cramming, and that they compel the person so educated to realise at every point that in many other kinds of skill and culture he is unspeakably inferior to many who have not been "educated" as he has. But are there not signs that this immense machinery for more or less literary education tends to produce more than is wanted of a certain kind of aptitude and knowledge? Was there ever a time when the world needed more daring experiments in education or when it was more undesirable that one dominant kind of training should be taken as affording a sufficient touchstone for merit? We are in some danger of inducing a sort of intellectual nausea in many minds which would have responded to another kind of training. The German system of education, and those other systems of education which have been modelled on the German, seem calculated to produce what is organisable and imitative rather than what is creative and independent. Yet at a time like the present, which is a period not only of national and social consolidation on a vast scale, but also of new departures and of readjustment of aims and principles, both sets of qualities are necessary; and the habit of subordination

* *Also sprach Zarathustra*, "Vom Lande der Bildung."
† See especially Chapter VIII.

without the gift of initiative may prove even more perilous in the long run than the gift of initiative unaccompanied by trained power of subordination. Should it not therefore be the chief aim of education to endeavour to produce that kind of independence which is never lacking in fresh initiative and in the power of taking fresh views of things, but is at the same time always conscious of the wisdom of the past and ever ready to subordinate its individual pleasure to any swiftly discerned occasion of public need?

(*d*) Germany has devoted more thought and labour to the science and art of teaching than any other nation in the world. Throughout their system everything is considered. As little as possible is left to chance. They regard the questions how a subject should be taught, in what order it should be taught, how much time should be allowed for teaching it, and what other subjects should be taught with it, as being of great consequence as well as of extreme difficulty. Each class in every school has its appointed task. All the boys in that class learn all their subjects together. There is no re-classification for different subjects as there is (often most beneficially) in English schools; and, under normal conditions, a boy spends one year in each class before he is promoted. Thus many of the questions of curricula are greatly simplified and lend themselves to exact investigation and to comparative analysis. Some Germans, indeed, think that the State has been almost fussy in its investigations into these matters, and regard the detailed revision of school time-tables as having been carried, during recent decades, to an undesirable point.* However this may be, German education has undoubtedly derived benefit from the systematic and searching attention paid to these questions of educational method. They leave nothing to rule of thumb. They know how much depends on having first-rate machinery and on keeping it well-adjusted. They think much more of what is going on inside their schools than we do. Educational interest is the real cause of their laborious study of methods. But the results of that study are not confined to the schools. A surprisingly large number of Germans possess the power of skilfully teaching other people the details of some practical business; and their pupils are as prepared to learn as their instructors are to teach. This is an educational aspect of German industry and commerce which is some times overlooked. In a nation of schools, nearly every department of activity becomes in a sense a school too. Those who possess the experience have cultivated the knack of imparting it. They are not inarticulate and unable to teach their juniors what they themselves do so well. They have been trained to think about methods of teaching and to break up their knowledge in such a way as to impart the component parts of it in the order, form, and measure best adapted to the mental preparation of the learner whom they desire to teach. In an educational atmosphere, school and workshop

* *Cf.* Professor Friedrich Paulsen, *Die höheren Schulen und das Universitäts-studium im 20 Jahrhundert.* (Braunschweig, 1901.)

and office all co-operate in giving the learner an intelligent command of the principles and practice of his business.

One great advantage which the Germans have derived from their modern system of education (and especially from their study of methods of teaching) is an increased power of expressing themselves, particularly in their own language. In this they fall behind the French, but they succeed far more than we do in giving the ordinary boy facility in expressing his ideas. Not that the Germans can boast so great or so varied a literature as the British can. Schoo's do not seem to produce genius, but they make very economical use of ordinary material. England has much to learn both from France and Germany in methods of teaching the mother tongue. In all the German schools great attention is paid to German composition and expression (oral and written), to German literature and German history, not to speak of the physical and political geography of the Fatherland. These studies are found to form an excellent basis for, and accompaniment of, more advanced instruction in languages, history, geography, and literature.

(*e*) Of late years some, though by no means all, German schools have greatly distinguished themselves by their success in teaching modern languages. This development is more important from an educational than from a purely commercial point of view. The study of living languages has not been taken up so enthusiastically by the teachers because the knowledge of French or English "pays in business," but because many of them believe that modern languages, taught as *living* languages and not as dead ones, may be made the instrument of a new and much-needed type of liberal education. On its best side the movement is really part of a revival of the Humanities in education as against the sterilising influences of mere utilitarianism. But it has a practical side as well, because it is evident that the power of fluent and accurate expression in two living languages besides one's own is, so far as it goes, a good equipment for certain kinds of modern enterprise. In our own country the Modern Language Association is doing an excellent work in directing public interest to the educational and political importance of first-rate instruction in living languages, as well as to the commercial value of such studies.* Sir Hubert Jerningham recently quoted a saying of Charles V. that "a man who knows four languages is worth four men"—an epigram which, of course, is only true if, in addition to linguistic skill, the man has character, insight, imagination, industry, and sympathy to correspond with it. But, provided that a youth has the force of character, the energy, the power of bearing responsibility, and the good judgment, without which mere facility in languages is of little permanent use, it will be admitted that, for pushing trade in foreign parts, a man who can speak three languages fluently and intelligently is often worth a

* See report of a meeting held on June 26th, 1901, in the *Journal of Education* for July.

great deal more than a man who can only speak his own. But the qualities that lie behind mere facility in expression are the really indispensable things in practical life. The Germans do not aim at cultivating a "courier-knowledge" of languages at the expense of the more valuable qualifications—ordered knowledge, perseverance, and trained imagination. Their young commercial men are brought up in the habit of mind which tries to realise what other people are likely to be wanting, and which instinctively applies itself to the best method of finding that out. But this habit of mind is not produced by premature specialisation in commercial technicalities. It is a result of interest in the subject, and of scientific study of the subject as part of a general education. The beginnings of the habit may be learnt at school, provided that the teacher is himself actively interested in the subject and himself exemplifies what he teaches in his own attitude of mind towards his subject. But it is the actual experience of life, and the example of fellow-workers, that do most to form such a habit of mind. Scientific interest in ways of doing business skilfully and economically diffuses itself throughout the commercial classes of a nation by a slow, permeating process—one man, consciously or unconsciously, teaching others. Schools are, after all, but a small part of the educational influences at work in national life.

(*f*) The German schools could never have become what they are to-day had it not been for the high intellectual qualifications of the teachers, and for the care taken to weed out those who are lacking in professional aptitude for the work of teaching. In Prussia no one may teach without the leave of the State. In England anyone may teach who can get anyone to accept his teaching. The distinction is fundamental, and shows how radical is the difference between the Prussian and the English view of the subject. Prussia organises her schools as she might organise an army. England regards teaching as an aspect of national life which necessarily involves many elements over which the State, as a State, should have no direct control. Prussia thinks of the *intellectual* service of the school. England is apt to agree with Mr. Ruskin that "education does not mean teaching people to know what they do not know, but to behave as they do not behave."* England lays more stress on the character-forming parts of education, Prussia on the mind-forming parts. Neither nation would deny the need for both elements in school training, but as a matter of fact each is apt a little to neglect that part of education which seems to it the less important. Any "professional training" of teachers must really rest on what kind of qualifications we think it most essential that a teacher should possess. Many Englishmen think that the influence of a master over boys out of school hours is far more important than his influence over them through their lessons. The Prussian takes the converse view. Though he is far from overlooking the importance

* *Crown of Wild Olive*, Lecture IV.

of character in education and the influence of example, nevertheless he habitually thinks of the teacher as at his desk teaching. He focuses his attention on this side of the teacher's work, and spares no effort to secure his doing it scientifically and well. The English schoolmaster has a very different idea of the range of his duties. The result is that he is generally much less learned than his Prussian counterpart. He is often far less adept in imparting what he knows. But, on the other hand (if he is a good schoolmaster), he has a far greater personal influence over his pupils. He is much more their friend than the Prussian schoolmaster (except in rare cases) can become. And he devotes an amount of strength, time, thought, and unselfish devotion to the *pastoral* side of his office, which hardly any Prussian schoolmaster would think it part of his duty to give. Here again each system has its good points, and its great defects. Our schools are strong where the Prussian schools are weak, and weak where they are strong. It would be a good thing if each could take something from the other.

(*g*) The Gymnasium (or fully classical school with a nine years' course) is by far the most important type of secondary school in Germany. This is due as well to social as to historical reasons. The Gymnasium is the favourite school of the higher classes in society. For years it enjoyed the sole right of preparing boys for the university, and therefore for all the learned professions, and for the higher offices in Church and State.* No other type of German secondary school as yet (whatever may be the case in the future) touches the Gymnasium in point of social or intellectual prestige. The following table shows at a glance what a pre-eminent place is held by the Gymnasien in Prussian secondary education. It will be seen that in Prussia there are more boys in the Gymnasien than in all the other types of secondary school put together, and that within recent years the attendance at the fully classical schools has been growing fast.

NUMBER OF BOYS IN PRUSSIAN SECONDARY SCHOOLS (EXCLUDING PREPARATORY DEPARTMENTS.)†

Winter Half-Year.	Gymnasien.	Pro-gymnasien.	Real-gymnasien.	Real-pro-gymnasien.	Oberreal-schulen.	Real-schulen.
1895-6	76,078	4,544	24,534	6,465	10,288	19,675
1896-7	78,011	5,326	23,719	6,061	11,157	20,665
1897-8	80,027	5,225	23,127	3,978	12,285	23,837
1898-9	83,272	5,929	20,956	2,559	12,071	27,232

Thus the non-classical schools between them contained 39,303 boys; the semi-classical schools, 23,515; and the fully classical schools, 89,201. And the Gymnasien alone have 83,272 boys as

* For the changes which have been made, and are still in process, in this regard, see below.

† This table is based on the statistics in the *Statistisches Jahrbuch der höheren Schulen*, 1900–01. (Leipzig: Teubner.)

compared with the total of 68,747 in all the other types of school. During the years covered by the table just given the attendance at the semi-classical schools (teaching Latin, but no Greek) showed a marked decline. This was due to a number of causes, possibly temporary in their character. The Berlin conference on secondary education held in 1890 showed how strongly certain currents of opinion were then running against the Realgymnasien as representing a "false compromise" between classical and non-classical education. The changes made in the Time Table of the Prussian Realgymnasien in 1892 were probably injurious to the intellectual efficiency of those schools, and were at the time the subject of energetic protest from many leading authorities. Those changes (greatly modified by the quite recent regulations given in Appendix II. below) lessened the amount of time given both to Latin and French. But during the last three or four years opinion seems to have changed a good deal, and the position of the Realgymnasien has proved stronger than it was thought to be in 1890–2. It is probable, therefore, that the numbers of boys in the semi-classical schools will again rise.

In an earlier volume of this series* an account has been given of the historical and other causes which have affected the development of the curricula in the various types of secondary school in Prussia. Here it must suffice to say that the Prussian Gymnasium was the great creation of that national movement for the reorganisation of civil life through the higher schools which is specially associated with the name of Wilhelm von Humboldt. The reforms of 1808–1818 set up in Prussia a highly efficient system of secondary *day*-schools. The old boarding-school tradition (which survived in England, and has gradually transformed itself, partly under the influence of such men as Butler of Shrewsbury, Hawtrey of Eton, and Arnold of Rugby, partly under the pressure of public opinion) was discarded by the Prussian reformers. The great English public schools, ill-managed as they were, had far more life in them at the beginning of the century than had their counterparts in Germany. W. von Humboldt and his colleagues took the local "Latin schools" and converted them into schools for teaching the classical humanities. The new Prussian Gymnasien may be regarded as fortresses, planted down in well-chosen positions in order to hold in subjection two very different kinds of intellectual enemy—the dreary formalism of the old Latin teaching and the far more serious peril of narrow utilitarianism. Every gymnasium was to be a focus of intellectual light—a centre of humaner influence, a protest against any mean idea of national education. It was hoped that the new enthusiasm for Greek poetry and Greek ideals of life would burn brightly in the new schools, and, in the end, transfigure German culture. But from the first the Gymnasium had to be a compromise. Then, as now, there were two tendencies in educational opinion, the one laying stress on the need for intellectual discipline, the other dis-

* Volume III. pp. 151, *et seq.*

posed to think that all would go well if only you secured a glow of intellectual interest. Moreover there was some lack of teachers able and qualified to translate the new ideas into practice. Hence, from the first, Latin held a more important place than Greek in the Gymnasien, though it was to Greek and not to Latin that the reformers looked for the vivifying influences which were to create the new educational tradition. And the claims of "formal discipline" were yet further met by the prominent place given to mathematics. Slowly the flush of enthusiasm for Greek culture began to fade. On the other hand, the need for some new and more practical type of secondary education for the middle and mercantile classes showed itself more and more. Within the schools themselves, Herder's ideal of "Education in the Humanities" was encroached upon by the growing taste for classical philology, and the State increased its demands for a solid and well-disciplined body of recruits for the Government service. The result was that, by the middle of the nineteenth century, the Gymnasien were the centres of an educational influence very different from that contemplated by W. von Humboldt and his contemporaries. But socially, intellectually, and administratively, the position of the Gymnasien was stronger than ever. They enjoyed a monopoly of all the higher kinds of Government favour. Through them, and through them alone, every boy had to pass who wished to be a clergyman, a jurist, a doctor, or a higher official of the State. For years the Prussian educational authorities gave little thought to anything between the schools for the leaders of the nation and the schools for the common people. But the rising needs of the middle and commercial classes gradually made themselves felt. The Realschulen, in the teeth of every kind of discouragement, slowly made their way. Government could not ignore them. In 1859 it recognised three classes of "modern schools." Of these the most important were the so-called "Realschulen of the First Class," with a nine-years' course, including Latin. This was the germ of the Realgymnasium. But the universities were still closed to the new type of school. The Gymnasium retained its great monopoly and its social prestige. At last, in 1870, pupils who had successfully completed a full course of nine years' training at the "Realschulen of the First Class" (*i.e.* with Latin) were admitted to the study of mathematics, natural science, and modern languages at the university. The tide was rising, but the Gymnasien had as yet no reason to feel alarmed. Twelve years later (in 1882) there was a fresh classification of the Prussian secondary schools. "The Realschule of the First Class" received the name of Realgymnasium; and Government recognised, among other types, a purely non-classical school with a nine-years' course, Oberrealschule). But the "privileges" attached to the last-named kind of school were still slender. Gradually, however, they have been increased, and, besides entitling a youth to the highly valued privilege of "serving one year as a volunteer," the completion of the nine years' course at an Oberrealschule admits him to the study of mathe-

matics and natural science at the university. In the meantime the privileges of the Realgymnasium had also been materially enlarged, and the friends of the purely classical Gymnasium began to show irritation and alarm at the advancing fortunes of their rather despised rival, the Latin school which was forbidden to teach Greek. The more militant spirits in the Gymnasium party made overtures to the Extreme Left in Prussian secondary education (*i.e.* to the advanced partisans of purely non-classical education), in the hope of being able to crush the intermediate party, *i.e.*, the upholders of "that dangerous compromise, the Realgymnasium." Opinion began to polarise itself. The extremists on both sides hoped that the central party might be destroyed. Each probably knew that, when that had been done, the ground would have been cleared for the final struggle for supremacy between the classical and the non-classical schools. But each cherished its own belief as to the probable issue of such a struggle, and, in the meantime, seemed to regard the destruction of the intermediate type of school as a necessary step to which both could agree. The threatened Realgymnasium, however, has proved to be a more powerful institution than its adversaries imagined. It enjoys the favour of many of the great cities. Probably a good deal could be done to improve some of the methods of teaching in these schools, but something like the curriculum of the Realgymnasium evidently meets *one* definite need of the time. During the last few years there has been over some parts of Europe and in the United States a distinct growth of opinion in favour of Latin as an element in secondary education. The causes of this will be discussed later. Nearly all the higher professional studies involve a knowledge of Latin. There is, therefore, a practical need for a type of secondary school which prepares boys for the examinations they want to pass, while at the same time paying some regard to "modern studies." The result is that, for the present, the Realgymnasium has repelled the dangerous attack, and the new regulations of 1901 will, perhaps, make it stronger than ever.

In November 1900 the Prussian Government took the important step of declaring that, in principle, the Gymnasium, the Realgymnasium, and the Oberrealschule are to be considered as giving an education of equal value for the general cultivation of the mind. But this declaration does not open all university studies, or therefore all professions, equally and indiscriminately to all pupils from all the three types of school. Special knowledge is still required for each of the different forms of academic and professional study, and those who come from a type of secondary school which does not impart the knowledge needed for the particular calling in view, will be required to obtain the necessary minimum of such knowledge (whatever the appointed minimum may be) before they can proceed to the next stage in their education.

Hitherto, however, the Gymnasium has been by far the most highly favoured of the three types of secondary school in Prussia.

Every boy in Prussia who wished to be a clergyman, or a jurist, or a doctor, has had, down to the recent change, to pass through the complete course of nine-years' work at one of the fully-classical secondary schools. That is to say, the Prussian Gymnasien have been the nurseries of the learned professions and of the higher ranks of administrative life.

The following figures* show (1) the number of scholars who, in 1899–1900, went on to the universities from the different kinds of Prussian secondary schools; and (2) the callings for which they were preparing themselves.

(1) *Prussian Secondary Schools and the Universities.*

In 1899–1900 there obtained the "Certificate of Maturity":—

(*a*) In the Gymnasien, 4,710 scholars, of whom 3,510 (or 74·5 per cent.) proceeded to the University.

(*b*) In the Realgymnasien, 716 scholars, of whom 217 (or 30 per cent.) proceeded to the University.

(*c*) In the Oberrealschulen, 314 scholars, of whom 65 (or 20·7 per cent.) proceeded to the University.

(2) *The Callings for which the Scholars were preparing themselves.*

(1) Of those leaving the Gymnasien—

821 (or 17·6 per cent.) intended to study Theology.
1,435 (or 30·5 „) intended to study Jurisprudence.
706 (or 17·1 „) intended to study Medicine.
320 (or 8·8 „) intended to study Philology.
220 (or 4·9 „) intended to study Mathematics and Natural Science.
277 (or 5·9 „) intended to enter the Army.
383 (or 8·1 „) intended to become Architects or Engineers.
172 (or 3·6 „) intended to enter the Departments of Mines, Forests, Post Office, or Inland Revenue.
272 (or 5·8 „) intended to become Agriculturists, Manufacturers, or Commercial men.

(2) Of those leaving the Realgymnasien—

217 (or 30 per cent.) intended to proceed to the University, mostly to qualify for the post of teacher in a Secondary School.
32 (or 4·5 per cent.) intended to enter the Army.
163 (or 25·6 per cent.) intended to become Agriculturists, Manufacturers, or Commercial men.
188 (or 26·4 per cent. intended to become Architects or Engineers.
89 (or 12·4 per cent.) intended to enter the Departments of Mines, Forests, Post Office, or Inland Revenue.

(3) Of those leaving the Oberrealschulen—

65 (or 20·7 per cent.) intended to proceed to the University.
20 (or 6·4 „) intended to enter the Army.
114 (or 36·3 „) intended to become Architects or Engineers.
33 (or 10·5 „) intended to enter the Departments of Mines, Forests, Post Office, or Inland Revenue.
79 (or 25·3 per cent.) intended to become Agriculturists, Manufacturers, or Commercial men.

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* Summarised by Professor Paulsen from the seventeenth *Ergänzungsheft zum Centralblatt für die Unterrichtsverwaltung in Preussen.*

(*h*) Clearness of educational classification; precision of nomenclature and of educational aim; high excellence of linguistic discipline; skill in devising methods of teaching and in the economical use of school time; readiness to take up new ideas and to revise old traditions; the high standard of intellectual attainment and of professional efficiency among the teachers; all these (and especially the last) are sources of strength to Prussian education. But the present condition of the system could never have been reached without the direct, stringent, and unceasing control of the State. That control has been elaborated with great administrative skill. Some will regard it as the crowning glory of the Prussian system; others as its central danger. I myself incline to the latter view.

The stages by which State control has been established over secondary education in Prussia may be summarised as follows. In 1750 the provincial Church Consistories, except that of Silesia, were brought under the jurisdiction of the Consistory of Berlin, and this change had the indirect result of bringing the schools more under one control. In 1787 King Frederick William II. established the *Oberschulkollegium*, which was expressly charged with the duty of improving the whole school system of Prussia in accordance with the needs of the time. The Minister of Education, von Zedlitz, was a member of the Oberschulkollegium, and perhaps his most influential colleague was Gedike, who had formed large plans for the State control of national education. The Oberschulkollegium was instructed to make provision (1) for the examination of intending teachers, (2) for the establishment of Training Colleges, (3) for the enforcement of Royal rights in regard to the appointment of teachers, and (4) for the regular inspection of all schools, the introduction of good text-books, and the study of improved methods of teaching. In 1788 the Oberschulkollegium instituted a State leaving examination for public secondary schools.* The men who inspired the policy of the Oberschulkollegium in its earliest days well understood that by means of such a leaving examination, together with regular inspection, the State can most effectively control (whether for good or for evil) the course of studies in secondary schools. A further step towards State organisation was taken by requiring the Church Consistories to furnish the Government with particulars as to the existing educational provision in their districts. But the activity of the Oberschulkollegium was checked for a time by the opposition of the Lutheran Church. The real struggle was between the rising power of the State and the claims of the Church to retain its control over education. It was a time of reaction after the period of Rationalism, and the King was

* Indirectly, the establishment of this examination, and the consequent encouragement of classical studies, had the effect of checking for a time the higher developments of the Realschulen.

not inclined to relax the close ties which bound the schools to the Church. Consequently the actual powers of the Oberschulkollegium were somewhat restricted, though the foundations of the new order were laid nevertheless. In 1794 the *Allgemeine Landrecht*, while recognising parental rights in education, formally declared all schools and universities to be State institutions, and forbade their establishment except with the State's foreknowledge and consent. The *Landrecht* further required that *all* places of education should submit themselves at all times to visitation and inspection by officials of the State. No child was in future to be excluded from any public school by reason of nonconformity of religious belief. And the teachers in all higher schools were expressly recognised as members of the Civil Service. These provisions mark an important stage in the advance of State control over education in Prussia. Then came the crisis of the Napoleonic war. The disaster of 1806 led to the reorganisation of the State, and consequently to the reorganisation of education. Patriotic devotion, enthusiasm for Greek culture, an intense belief in the importance of education for all classes, and especially for the leaders of the nation, produced a great wave of zeal for educational reform. Stein, in order to free himself from clerical interference, abolished the Oberschulkollegium, and in 1808 made the office of worship and public instruction one of the sections of the Department of the Interior. The direction of the Education Office was placed in the hands of Wilhelm von Humboldt. "In Prussian history," wrote Sir J. Seeley, "the year between April, 1809, and April, 1810, belongs to W. von Humboldt almost in the same way that the period between October, 1807, and November, 1808, belongs to Stein." In 1792 Humboldt had expressed his conviction that "public education lies entirely outside the limits within which the State should confine its operations."* But the events of the following years showed this theory of *laisser-faire* to be untenable, and it fell to Humboldt's lot not only to inspire every grade of national education by his influence, but, by one of the ironies of history, to set going a form of organisation which has developed into a more stringent form of State control over secondary schools, universities, and professional culture than he himself would probably have approved. The edict of 1810 fixed the qualifications of the teachers in all higher schools. In effect it substituted State control for local tests of competence and for personal recommendation by university professors. It was Humboldt's earnest desire that "headmasters should be left as free a hand as possible in all matters of teaching and discipline." His first steps as Director of Education seem to show that it was his plan to focus in the Education Office, by means of an Educational Council of eminent men of letters and

* In his work on the *Sphere and Duties of Government*, which, however, was not actually published till many years afterwards.

science, the best ideas as to methods of study and of teaching. It was possibly his hope that the diffusion of these new ideas would bring about, in the most fruitful way, the reforms needed inside the schools. But the current of change was running too fast for any such gradual improvements. The inertia of the schools proved a more serious obstacle to reform than Humboldt had expected it to be. Great changes had to be made, and made quickly. The result was that the State took up again the weapon, which it had first forged in 1788, but had not then been able to wield. In 1812 the State leaving-examination was extended to all the higher secondary schools of Prussia without exception, and in 1814 Süvern drew up, on behalf of the State, the curriculum for the classical schools. At first the State showed itself excessively anxious to leave as much as possible of academic and individual freedom. But the tendency to tighten the reins proved irresistible, and in 1834 the new regulations for the State leaving-examination laid it down that only those who had obtained a satisfactory leaving-certificate at a secondary school should be admitted (1) to the study of theology, law (including political and economic science), medicine (including surgery), and philology at the university, (2) to the examinations for academic honours, and (3) to the subsequent examinations for appointment to those public offices in Church or State for which a course of academic study was required.* Thus in Prussian education the grip of the State has ever grown closer. The State began to stretch out its hand over higher education many years before the great crisis in which Prussia struggled for her national life. But that crisis broke down all hesitation on the part of those who would otherwise have preferred to see a gradual reform from within the institutions rather than great changes imposed on them from without. The men who were charged with the duty of reforming Prussian secondary and higher education in the first decade of the nineteenth century were full of sympathy with individual effort, and were convinced that the permanent welfare of the State depended on the character and moral freedom of the individuals composing it. It was with reluctance that they availed themselves of the instruments of State control over school studies. When forced to apply them, they did so for the sake of stimulating education, not to limit its freedom. But from stage to stage State control grew closer and closer. Administrative convenience or necessity led to an ever-increasing restraint. And at last what had been begun for stimulus ended in something very like monopoly.

But in Prussian education State control is not centralised in the narrow sense of the word. The supreme educational authority of Prussia decentralises itself by stationing its outposts over the whole country, not by devolving its powers on to any local authority. It enforces its control through inspection, through regulations, to some extent through money grants, but ultimately

* See "Special Reports on Educational Subjects," Vol. III. pp. 99–101.

and most effectively through State control over entrance to the universities and to the various forms of professional as well as military and official life. The crucial difference between the German and the English systems lies here;—In England the State has very little to say on the subject of the education that is required as a preparation for later life. In Germany all the professions and higher callings form, as it were, a network of channels which can only be entered from some approved point in the main canals of State-controlled secondary education. At the entrance of every profession there is the gate of a State examination. Moreover, the wide extension of the Civil Service in Prussia carries with it a proportionate degree of State control over the secondary and higher education of all who intend to be candidates for official appointments. The State control of the entrances to academic studies and to professional life is the real "sanction" of the whole system of German secondary instruction. Were it not for this (and for the fact that one year of compulsory military service is excused in the case of boys who have passed satisfactorily through an approved secondary school), it may be doubted whether the number of boys in the German secondary schools would bear anything like so large a proportion to the population as is at present the case.

The following table, taken from Dr. R. P. Scott's "Memorandum on Public Secondary Schools in London, 1891–1901,"* illustrates the difference in the number of boys at secondary schools in Berlin, London, Birmingham, and Boston (U.S.A.).

1 Name of City.	2 Population.	3‡ Number of Boys in Public Elementary Schools.	4 Number of Boys in Public Secondary Schools.
*Berlin	1,750,000	100,685, *i.e.* 57 per 1,000 of population.	17,599, *i.e.* 10·0 per 1,000 of population.
†Boston, U.S.A.	582,463	35,212, *i.e.* 61 " "	2,524, *i.e.* 4·3 " "
Birmingham	514,956	26,583, *i.e.* 52 " "	1,758, *i.e.* 3·4 " "
London	4,546,752	235,000, *i.e.* 52 " "	13,370, *i.e.* 3·0 " "

* In the case of Berlin the provision of Public Secondary Schools for boys of 10 years and upwards is made up under the following heads:—Classical, Semi-Classical, and Modern Schools, each type being subdivided into those having a 9-year or a 6-year course respectively. Boarding Schools are comparatively rare in Prussia; this rarity increases the proportion in attendance at day schools.

† In the case of Boston the Latin and High Schools have been included in the Secondary Schools, the Grammar as well as the primary grades being reckoned as elementary; if the Kindergarten Schools be included with the latter, the figure in column 3 would be 64 per 1,000 of population.

‡ The figures in column 3, relating to London and Birmingham, have been taken from the Report of the Board of Education, 1899-1900, and are the numbers on the Registers for August 1899. In order to make them more nearly comparable with those of Berlin, where no children below the age of 6 are admitted, infants (presumably consisting of boys and girls in equal numbers) are not included; if included, the figures in column 3 would run thus: Birmingham would show 86 per 1,000 of population and Lond n 83. The figures in column 4, though referring to 1901, vary very little from those for 1899.

* Published at the Office of the Incorporated Association of Headmasters, 37, Norfolk Street, Strand, May, 1901.

The Prussian Government has recently made an important decision which affects the question of these "school privileges." Among those privileges one of the most valued has been the recognition of a school's leaving-certificate as excusing a youth from one of the two years of military service. It is the desire of every boy in a secondary school to obtain this certificate (Zeugniss für den einjährig-freiwilligen-Militärdienst). Anyone who holds this certificate is not only excused one year's military service but, while serving, enjoys a higher status in the ranks. His food, lodging, and uniform have to be provided at his (or his parents') own expense, and the necessary outlay amounts to at least £100. In Germany social distinctions are very precise, and the privilege of serving as a "volunteer" is highly valued. Moreover, the certificate which confers this privilege on the holder has a definite educational significance. It means that the youth has satisfactorily completed a long course of secondary education. Accordingly the certificate has become a usual qualification for entrance into good business-houses. Commercial firms in advertising vacancies often state that they will require applicants to hold this certificate. The result is that what is primarily a military regulation has had far-reaching commercial effects, and has tended to raise the level of intellectual attainment among the younger business-men of Germany. It has also had the effect of inducing large numbers of parents, who would otherwise have been contented to give their boys a shorter and less thorough education, to send them to secondary schools, and to keep them at those schools for not less than six years. *i.e.*, from nine to sixteen years of age at the least. But the "certificate for one year's military service as a volunteer" is not confined to those boys who have completed the course at one of the nine-year schools (viz., Gymnasium, Realgymnasium, or Oberrealschule). It is also given to boys who have finished the course at a Progymnasium, or Realgymnasium, or Realschule. At these latter schools, however, the course extends only over six years. There were therefore very good grounds for granting an equivalent certificate to boys who had satisfactorily completed the first six years of the nine-years' course at a Gymnasium, Real-gymnasium, or Oberrealschule. Otherwise, the State would have been setting a kind of premium on schools with the shorter course. Therefore in Prussia there was established an examination held at the completion of the work done in IIB. of a nine-year school. This examination was called the Abschluss-prüfung, and those who passed it received the certificate excusing them from one year of military service, and giving them the status of a "volunteer." This examination is not to be confused with the "Reife-prüfung," which is held only at the completion of the full course of the school. The institution of the Abschluss-prüfung was deprecated by many friends of secondary education in Prussia. They foretold that one result of its establishment would be to break into the whole scheme of studies appointed for the nine-year schools. The facts have

justified these fears. The Abschluss-prüfung has had injurious effects on the nine-year schools in Prussia. It was found to dislocate the work of the teachers by setting up a new examination-test two-thirds of the way through the complete school course. In the winter half-year of 1898–99 there left the Gymnasien, from the class called IIB. (*i.e.* the fourth class from the top of the school), no less than 1,230 boys with the "certificate for one year's military service." In the same half-year there left with the same certificate 694 boys from the Realgymnasien, and 572 boys from the Oberrealschulen. So large a "leave" greatly reduced the numbers in the three highest classes in the nine-year schools. In the winter half-year 1898–99 the following were the numbers of boys in the different classes of the three types of nine-year schools in Prussia:—

	VI.	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.
Gymnasien	11,890	11,520	11,852	11,124	9,968	9,599	6,829	5,658	4,832
Real-gymnasien	3,228	2,857	2,975	3,272	2,745	2,541	1,518	999	821
Oberreal-schulen	2,257	2,103	2,012	1,722	1,486	1,304	578	351	258

First six-years' course.

This tendency to leave two-thirds of the way through a nine-years' course naturally impairs the educational efficiency of the schools, and the Gymnasien being the most numerous, suffered most. But the tendency is inevitable so long as (1) the "certificate for one year's military service as a volunteer" can be gained at the end of the sixth year's work in a secondary school, and (2) parents prefer the Gymnasien for social reasons. However, there was no need to aggravate the mischief by having a special examination at the end of the sixth year of a nine-year's course. Saxony had never done so, and had seen no reason to follow the Prussian example. In consequence, the Prussian Government announced in November, 1900, that the "Abschluss-prüfung" would be abolished as soon as possible. But the parents of boys in the nine-years' schools, whose main desire is that their sons should win the "certificate for one year's military service" as soon as possible, will continue to take them away at the end of the sixth year, provided that their work has been satisfactory enough to gain that certificate.

Within the last few months the Prussian Government has taken a further step of great importance in the direction of giving more freedom of access to university studies. By a decree, dated 26th February, 1901, the Minister of Education has given instructions to the State-Examination Boards that scholars who have completed the course at any of the three types of schools with a nine-years' curriculum (*i.e.* classical, semi-classical, or non-classical) are to be

admitted to the State examination for the certificate qualifying the holder to teach in a secondary school, without any restriction as to particular subjects. But, in order to secure the necessary intellectual qualifications two conditions are prescribed. (1) Those candidates who wish to teach Modern Languages are to be required to prove their knowledge of the elements of Latin Grammar, and their ability to understand, and to translate correctly, at least the easier passages in Latin authors like Cæsar. (2) Those candidates who wish to be recognised as qualified to teach History are required to prove that they possess the necessary knowledge to enable them to understand historical works written in Greek or Latin. The effect of these changes is that the Gymnasium will lose (on paper, at any rate, and doubtless in practice also) some of its present monopoly. It will be much easier than it is at present for a boy from an Oberrealschule to become a teacher of Modern Languages in a secondary school and for boys from Realgymnasien or Oberrealschulen to qualify themselves as teachers of History. Under the previous regulations, which still hold good in this regard, a pupil on completing his course at an Oberrealschule could obtain the privileges attaching (1) to a Realgymnasium, by passing a further examination in Latin at a Realgymnasium, and (2) to a Gymnasium by passing a further examination in Latin and Greek at a Gymnasium. And similarly, a pupil on completing his course at a Realgymnasium could obtain the privileges attaching to a Gymnasium on passing at a Gymnasium a further examination in Latin and Greek. But, if they failed to satisfy these extra tests, boys from Oberrealschulen have hitherto been shut out from the study of Modern Languages at the university, and therefore from the possible career of a Modern Language teacher at a secondary school; and boys from Oberrealschulen and Realgymnasien alike have been cut out from the study of history at the university, and therefore from the chance of becoming qualified to teach history in a secondary school. The new regulations widen the area from which, in future, teachers can be drawn. But at the same time they retain what will almost universally be regarded as sufficient guarantees for the intellectual attainments of intending teachers. A master in a Prussian secondary school has to know a great deal more of the subject which he proposes to teach before he is allowed to begin to teach it, than has the English secondary schoolmaster. The tendency of the whole system is to produce a learned class. Whether it also causes undue weight to be attached to learning as compared with the other qualifications of a schoolmaster is a matter of opinion. Our English practice shows that we generally regard erudition as being a far less important element in a schoolmaster's qualifications than activity of mind and body, natural sympathy with boys, love of games and outdoor exercises, and, above all, than the power of commanding the respect of his pupils, and exercising a good and invigorating influence upon them in school and out. Perhaps as a consequence of this we have fallen into the other extreme,

and have been too casual in our requirements as to high intellectual attainment. But there are no schoolmasters in the world who have so strong a hold on the affections of their pupils, past and present, as have many of those at our best English secondary schools.

Owing to the recent changes, mentioned above, the present system of "school privileges" in Prussia must be regarded as in a somewhat transitional state. For example, the study of medicine at the Universities has just been thrown open to the pupils from the Realgymnasien. Other changes are doubtless pending. As it stood a year ago the system had become extremely elaborate. The details of the privileges, which the various secondary schools enjoyed according to their different degree, are so numerous as to fill, as regards civil callings alone, four closely-printed pages in the current issue of the Year-book of the German Higher Schools, while another page and a half are occupied by a list of the corresponding "privileges" in respect of military service. The Gymnasium enjoyed a monopoly in the preparation of boys intended for "law, physic, or divinity." The following table (which is confined to some of the more important privileges, and, for the reasons given above, represents a transitional state of things) will best show the reader how carefully devised is this part of the machinery of State control of secondary education in Prussia.*

Table showing what type of Secondary School a Candidate must have attended, and what Class in that School he must have passed through, in order to qualify for the Academic, or Professional, Studies named.

—	Gymnasium.	Realgymnasium.	Oberrealschule.	Progymnasium, Real-progymnasium, or Real schule.
Study of Theology at the University. Admission to the State Examination for Ecclesiastical Service - - - -	IA	—	—	—
Study of Law at the University. Admission to State Examination for the higher Civil Service	IA	—	—	—
Study of Medicine at the University. Admission to State Examination -	IA	IA	—	—
Study of Classical Philology at the University. Admission to State Examination for Certificate to teach that subject -	IA	—	—	—
Study of History at the University. Admission to the State Examination for Certificate to teach History - -	IA	IA *	IA †	

* If sufficient knowledge of Greek is shown by candidate.
† If sufficient knowledge of Greek and Latin is shown by candidate.

* In preparing this table I have been helped by that given in Dr. Russell's *German Higher Schools.*

—	Gymnasium.	Realgymnasium.	Oberrealschule.	Progymnasium, Realprogymnasium, or Realschule.
Study of Modern Languages at the University. Admission to State Examination for Certificate to teach Modern Languages -	IA	IA	IA ‡	—
Study of Mathematics and Natural Science. Admission to State Examination for Certificate to teach those subjects - - -	IA	IA	IA	—
Study of Architecture and Mechanical Engineering. Admission to the Technical High Schools at Charlottenburg, Hannover, Aachen, Munich, Dresden, Stuttgart, Karlsruhe, Darmstadt, and Brunswick. Admission to the State Examinations for Civil, Mechanical, Marine, and Mining Engineers, and for Architects. Admission to the Schools of Mines at Berlin and Clausthal - - -	IA	IA	IA	—
Professional Training at Schools of Forestry at Eberswalde and Münden, and admission to the State Examination for the Forestry Service	IA	IA	IA	—
Professional Training for Agriculture. Admission to the Higher Agricultural Schools at Berlin, and Poppelsdorf (near Bonn), and at the Universities of Breslau, Göttingen, Halle, and Königsberg. Admission to the State Examination for the position of teacher at State Agricultural Colleges - -	IA	IA	IA	—
Professional Training at the Academic Institute of Church Music at Berlin - - - -	IA	IA	IA	—
Admission as "Élève" to the higher Post and Telegraph Service -	IA	IA	IA	—
Admission to Examination for the Constructive Engineering Departments of the Imperial Navy - - -	—	—	IA	—

‡ If sufficient knowledge of Latin is shown by the candidate.

—	Gymnasium.	Realgymnasium.	Oberrealschule.	Progymnasium, Realprogymnasium, or Realschule.
Admission to lower Clerkships in the Inland Revenue Office (provided the candidate also holds the leaving certificate of an approved lower Technical School with a two-years' course) - -	IIB	IIB	IIB	I
Admission to Land Surveyors' Examination (provided the candidate holds the leaving certificate of one-year's course of study at an approved lower Technical School) - - -	IIB	IIB	IIB	I
Admission to the Chemists' Examination (provided the candidate passes an examination in the Latin required for IIA of a Realgymnasium) - - -	IIB	IIB	IIB	I
Admission to the Dentists' Examination -	IB	IB	IB	—
Admission to the study of Veterinary Medicine	IB	IB	IB	—
Admission to study at the Industrial Art Museum in Berlin - -	IIB	IIB	—	—
Admission to the Hauptkadetten-Anstalt at Lichterfelde (Military School) - - -	IIB	IIB	—	—
Admission to an ordinary Agricultural School -	IIIB	IIIB	IIIB	—

From this brief summary of the main features of the system of secondary education in Prussia, I return to the questions which were mentioned on an earlier page (p. 63) as being at present under discussion.

(1) First, with regard to the relation between the public elementary and the secondary schools, the Prussian secondary schools are so elaborately organised, their intellectual standards are so high, and the work of one class dovetails so exactly into the work of the class above it, that a boy does best by entering, when he is nine years of age, at the bottom of the school and working his way up to the top of it by the time he is eighteen or nineteen. The result is that boys intended for secondary schools would generally leave the elementary school (assuming them to be educated there at all) when they are nine—*i.e.*, three years after the commencement of the elementary school course. But so advantageous is it to have special preparation

for the secondary school in a preparatory school organised for that purpose, that there is a steady growth in the number of little boys who, from six to nine years of age, attend the preparatory department of the secondary school instead of the public elementary school. The following statistics show the growth of this tendency in Prussia in recent years :—

Winter Half-Year.	Number of Boys in the Preparatory Departments Attached to		
	(1) Fully-Classical Schools.	(2) Semi-Classical Schools.*	(3) Non-Classical Schools.
1895-96	9,242	4,852	5,400
1896-97	9,715	4,793	5,613
1897-98	9,944	4,706	6,111
1898-99	10,685	4,149	6,326

* The total number of boys in these schools has fallen from 1895-96 to 1898-99, and the numbers in the attached preparatory schools have also dropped, though not in the same proportion.

The figures show that the "Preparatory Departments" are coming more and more into vogue. In the winter half-year of 1898–99 there were 83,272 boys in the Prussian Gymnasien,or fully-classical schools with a nine-years' course. In the preparatory departments attached to those schools and attended by boys not yet old enough to begin the nine-years' course, there were no less than 10,289 boys. In the preparatory departments of the Realschulen (non-classical schools with a six-years' course) there were at the same period 4,227 boys, while in the Realschulen themselves the pupils numbered 27,232.

The Prussian secondary schools are not organised "end on" to the top of the public elementary schools. The fact that, except in the Berlin Realschulen, classics or foreign languages are taught from the bottom of the secondary schools, but not at all in the Prussian public elementary schools, puts an elementary schoolboy at a disadvantage, unless he enters the secondary school at nine years of age, or unless he can get special private preparation at a later age. It is well known how large a number of highly cultivated and eminent Germans have obtained their early training in a public elementary school* ; but the German system is far from being organised, like the Norwegian, with the definite aim of making such a course of education the normal one. The Prussian secondary schools are not regarded as continuative of the completed work of the public elementary schools. There is no great trunk line of studies leading through the public elementary schools up to the secondary schools, and thence onwards through to the university. At the beginning of the secondary school course (with the exception named above) there is a break of gauge. Nor does the Prussian

* *e.g.* Professor Virchow, who was educated, till the age of 13, at the primary school in his native village in Pomerania.

Government do much to develop a "top" to the public elementary schools, though in a few places the so-called middle schools may be regarded as a sort of higher primary schools. The high level of intellectual attainment and of professional skill possessed by the Prussian elementary schoolmasters is well known throughout the world. Not less universally recognised is their devotion to duty. But it is on the secondary schools, on the universities, and on the technical high schools that the Prussian Government has centred its most anxious care and most strenuous efforts. It believes that the country must be led intellectually from above, and it spares no pains to secure the intellectual efficiency of the middle and upper classes. The Prussian principle is to spend money on a few very good staircases, and not on a great many ladders leading nowhere in particular.

Some German critics, however, regard the tendencies of the Prussian educational system as being somewhat in conflict with the interests of social unity. Among those who have earnestly pleaded for a more general use of the public elementary school as the preparatory course for the secondary school is Professor W. Rein, of Jena. Another German writer, in a recent work discussing the relations between education and social development, goes so far as to argue in favour of all parents being *compelled* to send their children from six to twelve years of age to the public elementary schools.* There are no signs, however, of such a view being adopted by the more responsible leaders of German educational opinion. If anything, the current seems for a time to be running the other way. To obtain results of first-rate educational quality seems to be a matter of such imperative necessity for an active modern State that they would be loath to sacrifice intellectual efficiency in the hope of bringing about more social admixture in the primary schools. "And in any case," they would probably argue, "social unity depends on a great number of economic, historical, and spiritual causes. No merely mechanical enforcement of a law that all children should go to the same day-schools would suffice to create social unity if otherwise non-existent; or to counteract social discord, were such unhappily to be prevalent. Two little children may sit side by side on the same bench, and yet intellectually and socially belong to different worlds. It is the home and play-time, not the school alone, which affect the tone of children's minds. How can you expect a careful parent to be indifferent to the kind of children with whom his own boys and girls are to be encouraged to associate?"

On the other hand, it must not be forgotten that there is a strong feeling of national unity in Germany, probably stronger now than ever before. Moreover, owing to the system of block dwellings, rich families and poor are often much more intermixed in point of place of residence than is generally the case in England. And the great excellence of the primary schools in some places naturally encourages parents to take advantage of them. Nor has the old

* Paul Natorp, *Sozialpädagogik.* (Stuttgart, 1899.)

tradition in favour of common-school education yet wholly lost its hold. But it must be admitted that, partly as a result of city life, partly as a consequence of the rising standard of intellectual requirement, some of the economic and intellectual tendencies of the present time point in the direction of increased separation between different types of school rather than in that of simple amalgamation. The pleasant relationships between boys of very different positions, which in many countries were so often a mark of early school life in small towns or country places, were rendered possible by an almost patriarchal simplicity, by everybody knowing every one else's position, and by the common recognition of an established social order. The loss entailed by the disappearance of those old companionships will be great. The son of well-to-do parents may learn something much better than book-knowledge by becoming practically acquainted at first hand with the different needs and experiences of families in more straitened circumstances than his own. Happily there are few pleasures so deep and lasting as those which may come through a closely-knit and well-established form of local life; clustering round some natural centre, enriched by a great variety of experience, and embodying much shrewd tradition. Perhaps, in the future, the tide may turn back towards something, like and yet unlike, what we have had to leave. But we cannot replace, at our pleasure, a disappearing order of society, however much we may regret it. And still less can we decree, at will, what form the much-desired educational unity shall take.

(2) With regard to classical education, there has evidently been a marked growth of opinion in Prussia during the last ten years. Four points may be noted. First, there has arisen a new wave of enthusiasm on behalf of the classical humanities, and especially on behalf of the study of Greek literature and philosophy. Second, there is an evident reluctance to dispense with the formal discipline imparted by good teaching of Latin. Third, there is a more general recognition of the fact that, whatever be the case with Greek, Latin is, for historical reasons, indispensable to any high degree of intellectual interest in any learned profession. Fourth, there is a laudable readiness in some quarters to throw to the winds the monopoly of certain privileges formerly possessed by the Gymnasien.

This last shows confidence in the assured future of classical studies. It may show too an almost fastidious distaste for anything implying that classical studies, if taught in a humane spirit and invigorated by modern research, need to be supported by legal monopolies. But it may also proceed from an even stronger distaste for the task of dealing with the dull and commonplace minds which have been drawn in some measure into the Gymnasien, through the direct and indirect operation of the special privileges attached to them. In 1890 the Berlin Conference on Secondary Education was in

favour, by a decisive majority, of upholding as much as might be of the old monopoly. In 1900 the new conference went as decisively the other way.

The more general recognition of the historical necessity of Latin as one of the keys to the materials of modern culture has had a double effect. First, it has strengthened the position of the Realgymnasien—those hybrid schools which successfully attempt a compromise between modern studies and the acquisition of Latin. The result of the deliberations of the Conference of 1900 has been a distinct increase in the hours of Latin teaching in these schools.* This reverses the decision of 1890. In the meantime the great cities have evinced their loyalty to the Realgymnasien. The latter meet a practical need, and for the present at any rate their future seems assured. Secondly, the *technical*, as distinct from the merely educational, value of Latin has become more clearly recognised. This recognition may well lead in the future either to the conversion of some Oberrealschulen into Realgymnasien, or to the introduction of Latin as an optional subject in the three highest classes of the Oberrealschulen. The outlook for the uncompromising advocates of a purely non-classical education is not quite so bright as it was. In Norway indeed, and now even in more conservative Sweden, the current is running, for the time, strongly against the older classical education.† But it must not be forgotten that many Scandinavians are under the practical necessity of learning one modern language more than the Germans. Historical and (in Norway in particular) semi-political reasons seem to have accentuated this almost personal dislike of the classical tradition. In Russia it has recently been decided to reduce the amount of Latin teaching in the middle schools, but here again the cause may partly be found in the number of modern languages which educated Russians are bound to learn. In the United States of America, on the other hand, the study of Latin is in the ascendant. It appears from the statistics of the Bureau of Education in Washington that in the public and private secondary schools of the United States, there are now more scholars studying Latin than, with one exception, any other single subject. The exception is algebra. The percentage of the scholars studying Latin has been rising during the last ten years in the American secondary schools. In 1889–90 it was 33·62 of the total number of scholars in the schools; in 1893–94 it had risen to 43·59; and in 1897–98 it stood at 49·44. The reasons why Latin is practically indispensable to advanced study in any learned profession could not be more clearly stated than in the following words of Sir F. Pollock.‡

"Why go on hammering at Latin? The answer is just that Latin is the key to the whole history of Western civilisation, as Arabic is to that of

* The Royal Decree of November 26th, 1900, states that His Majesty "will raise no objection to Latin occupying a position of increased importance in the time-table of the Gymnasien and Realgymnasien."

† See Dr. Andersen's paper in Vol. VIII. of this series.

‡ In the *Pilot*, January 12th, 1901.

Moslem culture. Latin was a perfectly living medium of intercourse for the whole Western world of letters throughout the Middle Ages and the Renaissance. It still lives as the universal language of the Western Church. I do not except the Anglican Church, which does not lack its own authentic Latin texts. Without command of Latin it is impossible to go back more than about a century in the history of science, art, politics, jurisprudence, or even vernacular literature and philology. The exact sciences are no exception. Newton wrote in Latin; Leibnitz, if not Newton, probably thought in it. Without Latin, in other words, there is no liberal education. The history of English law itself, perhaps the most insulated and self-contained branch of all human learning, is largely contained in Latin documents which are not and cannot be adequately translated. Greek is a fascinating speciality and a splendid luxury. But, for all historical purposes, except the study of Greek antiquity and ancient Greek thought themselves —a large exception, I admit—it is a luxury and not a necessity. Latin, though less interesting in itself, is indispensable. That is one valid and inevitable reason why we must go on learning Latin. Does anyone suggest that the Latin materials of modern history should be translated? The mass of them alone forbids the thought of it.

"But what of the connection of Latin with the most modern studies? Latin is not only the key to European history in the widest sense, it is the key to the whole group of Romance languages. French without Latin will help a man somewhat in Italian, a little in Spanish; in the less known Romance tongues and dialects very little. Latin and French will carry him a large part of the way almost unconsciously. With French, I say, for I conceive that French and Latin should be studied simultaneously, and I incline to think that French should be begun, if anything, sooner. Even German,—unfortunately as I think—shows a good deal of Latin influence in its construction. . . . Indeed, much German, as late as the eighteenth century, is hardly intelligible without knowledge of Latin. We might wish it otherwise, but facts are as they are. Thus Latin is a guide and instrument of the highest power even in the modern vernacular world, and outside the languages over which it may claim a direct *patria potestas.*

"The real question is not whether we shall go on teaching Latin, but what we can do to teach it so as to make learners understand that it is not a dead language at all. On this ground it is useless for an amateur to offer suggestions which experts would be ready to denounce as impracticable, possibly with superior knowledge, and certainly with the appearance of it. Indeed, I do not know what improvements may have been made of late years. I do know and regret that the movement for the reform of Latin pronunciation started by our leading Latin scholars fully a generation ago has borne, so far, but scanty fruit. It would be something to adopt the modern Italian pronunciation for mediæval Latin, as to which there is no historical doubt at all. The only consolation is that French practice in this respect is, if possible, worse than our own.

"The sum of the matter is that all thorough-going literary and scientific study, saving a limited number of branches of mathematical and physical science, but including the historical study of those, assumes a working acquaintance with Latin; and the place which Latin holds and must continue to hold is determined not by its intrinsic merits but by its constant and various uses as a tool of the scholar's trade."

On the value of Latin as an instrument of intellectual discipline, opinion is much more divided. Some great authorities dilate on its "admirable tonic virtue," on its possessing "some peculiar quality which braces the faculties of the learners," and on its being "an unrivalled instrument for stimulating the reasoning faculties at an age in which their very existence might almost seem open to

doubt."* Other friends of classical education, however, repudiate these arguments with some heat and reply that, if you are looking for exercises in mental gymnastics, why not introduce Chinese? Ordinary opinion seems inclined to follow a middle course. It is generally agreed that many old-fashioned schoolmasters were apt to overstate the argument in favour of "formal discipline for the mind." In parts of Germany, about a century ago, the worship of Latin as an instrument of educational discipline reached an extravagant height. One great headmaster went so far as to say that nothing in the world could ever replace Latin grammar as a training of the reasoning powers, and that it was just as useful for a bare-legged young goose-herd as for a budding philologist. This excessive zeal for "discipline" brought about a much-needed reaction. Teachers began to throw stress on the need of awakening intellectual interests rather than on the benefit of stern mental discipline. But danger lay in this extreme no less than in the other. Excitement and excessive variety in education may do as much to impair the value of training in one direction as pedantic formalism may do in another. The theory of education is apt to swing to extremes. But the best teachers are on their guard against this tendency, and know how to combine what is best in discipline and in interest, without drifting into a tepid compromise which misses the benefit of both. At the present moment those who argue in favour of giving little boys large and early doses of Latin grammar are apt to shrug their shoulders, and to defend their practice on the ground that there is nothing else so handy which does what is wanted half so well. Latin is cheap. Its elements can be taught out of a few books. It does not involve costly apparatus. It can be taught to fairly large classes. There is a recognised standard of efficiency in teaching it. It is an important part of the stock-in-trade of many of our best masters. The methods of teaching it have been sharpened to a fine edge through long practice. It is an excellent drill for scatter-brains. And little boys, as a rule, take to it rather kindly, provided that the teaching is smart, the discipline brisk, and the competition keen. But there is no disposition to claim on behalf of Latin any kind of monopoly. There is a feeling in the air that in the long run something else will be found which will take its present place—

* At the Berlin Conference on Secondary Education, held in June, 1900, Dr. Jäger, a sturdy advocate of the older educational methods, quoted with high approval some words used by Lord Rosebery in regard to German progress:—"Germany is infinitely more painstaking and scientific in its methods." He then proceeded to maintain that one of the corner-stones of German thoroughness and scientific method was the practice of teaching little boys Latin as soon as they entered the secondary school at nine years old. (*Verhandlungen über Fragen des höheren Unterrichts*, 1901, p. 59.) Prince Bismarck once expressed himself as "strongly in favour of a classical education," and as regretting that French should now be taught at the expense of Latin.—(*Conversations with Prince Bismarck.* Collected by von Poschinger. Ed. Sidney Whitman (Harper, 1900), p. 290.)

not expel it, but dethrone it. In the meantime, however, like other threatened institutions, it promises to live long, because it is very well taught; because it has considerable practical advantages; because in an age of intellectual distractions it is not amiss to have at least one tough and solid subject in every curriculum, and Latin is one of the subjects which well serves such a purpose; and, last but not least, because Latin is part of the weft of European culture and we cannot suddenly and at pleasure cut ourselves off from the past.

Latin really owes its present position in secondary education to the fact that it used to be the international language of all learned European society. That is to say, it was as necessary for cultivated intercourse as English, French, and German are to-day. Montaigne may be taken as standing almost at the parting of the ways between the old culture and the new. He thus tells the story of his own early instruction in Latin (1539). His father sent for a German, who, "being then altogether ignorant of the French tongue," was nevertheless—

"exquisitely readie and skilfull in the Latine. This man . . . had me continually in his armes, and was mine onely overseer. There were also joyned unto him two of his countrimen, but not so learned; whose charge was to attend and, now and then, to play with me; and all these did never entertaine me with other than the Latine tongue. As for others of the household, it was an inviolable rule that neither my father nor my mother nor man nor maidservant were suffered to speake one word in my companie except such Latine words as everyone had learned to chat and prattle with me. It was strange to tell how everyone in the house profited therein. My father and my mother learned so much Latine, that for a need they could understand it when they heard it spoken, even so did all the household servants, namely such as were neerest and most about me. To be short, we were all so Latinized that the townes round about us had their share of it; in so much as even at this day (1580) many Latine names both of workmen and of their tooles are yet in use among them. As for myself, I was about six yeares old and could understand no more French or Perigordine than Arabike. . . . I had got as pure a Latine tongue as my Master could speak; the rather because I could not mingle or confound the same with other tongues."*

In 1612, an English schoolmaster, Brinsley, published, in the form of a dialogue between two teachers, a book on the studies of grammar schools. He dwells on the importance of teaching boys to speak Latin, but also confesses, in the mouth of one of the interlocutors, how difficult it is to maintain the old practice under the new conditions of the time.

PHIL. Lastly when you have layed a sound foundation, that they may be sure to haue warrantable and pure phrase, by these means or the best of them, and all other their schoole exercises; then continuall practice of speaking shall vndoubtedly accomplish your desire, to cause them to speake truely, purely, properly, and readily; practice in a good way being here, as in all the rest, that which doth all.

SPOUD. These things, or but the best of them, being constantly practiced, cannot but effect maruellous much, and very surely; chiefly if we could

* Florio's "Montaigne's Essayes." Bk. I. chap. xxv.

bring them to speake Latine continually, from that time that they beginne to parse in Latine: but this I haue had too much experience of, that without great seuerity they will not be brought vnto: but they will speake English and one will winke at another, if they be out of the Master's hearing.

PHIL. It is indeed exceeding hard, to cause this to be practiced constantly amongst schollars.*

Latin was useful in international trade as late as the seventeenth century. A writer of the time speaks of it, as nowadays the friends of commercial education refer to French, German, or Spanish. "Factors or Marchants or the like, going beyond seas, find it necessary and convenient to speak Latin." But it was as the language of learning and of science that Latin continued to be indispensable. Dr. William Harvey (1578–1657) "had acquired such a perfect colloquial knowledge of Latin that he thought with equal facility in Latin or in English, so that it was immaterial into which language he put his ideas." But the result was an odd jumble. Some of the sentences in his lectures are a mosaic of Latin and English. For example: "Snayles cornubus tactu pro visu utuntur, unde oculi as a Centinell to the Army locis editis anterioribus." And again: "Exempto corde, frogg scipp, eele crawle, dogg ambulat."† A recent American writer quotes the early laws of Harvard College (1642–1646) as requiring every scholar to be able before admission, "to make and speak true Latin in verse and prose," but adds that "the attempt to compel conversation in Latin . . . always failed in America, even in Harvard College."‡ But the tradition was much more persistent in England, doubtless because of our closer connexion with the Continent of Europe. Locke, writing in 1690, advised that French should be taught before Latin, but both by conversation. "If a man could be got who, himself speaking good Latin, would always be about your son, talk constantly to him, and suffer him to speak or read nothing else, this will be the true and genuine way."‖ Dr. Wake (Archbishop of Canterbury, 1716–1737) conducted in Latin an important correspondence with certain Doctors of the Sorbonne on the subject of the terms of possible union between the English and Gallican Churches, another correspondence with Protestant pastors and professors in Geneva and Berne on matters of subscription and ecclesiastical discipline, and a third with a Polish divine on the lawfulness and expediency of a union between the Lutherans and the Church of Rome.§ Gray (1716–1771), says Mr. Duncan Tovey, "was more fluent in Latin than in English verse. Latin taught him by his nursing mother, Eton, was in literature his original

* Brinsley, *Ludus Literarius; or the Grammar Schoole*, 1612 (p. 219).

† D'Arcy Power, *Life of William Harvey* (Unwin, 1897), p. 56.

‡ E. Eggleston, *The Transit of Civilization from England to America in the Seventeenth Century* (New York: Appleton, 1901), pp. 215 and 259.

‖ *Thoughts concerning Education*, pp. 514-517.

§ Maclaine's translation of Mosheim's Ecclesiastical History, 1768, Vol. V. pp. 121-143 and 151-179. I owe this reference to Mr. Abbey's *English Church and its Bishops*, 1700-1800.

tongue."* Isaac Williams, who was at Harrow about 1816-21, says in his *Autobiography* that the great charm of his life there was composition, especially Latin. "Our exercises were so numerous—four every week—that I then acquired the habit of writing so much. . . So much was I used even to think in Latin that, when I had to write an English theme, which was very rarely, I had to translate my ideas, which ran in Latin, into English."† There are still many middle-aged Germans who can well remember Latin being constantly spoken in the classical lessons given in the schools. In 1865, Mr. Matthew Arnold, visiting the Friedrichs-Wilhelm Gymnasium in Berlin, heard the headmaster give a lesson on a Greek play to the highest class in the school. "He spoke Latin to his class, and the class spoke Latin in answer: this is still a common practice in the German schools, though not so common as formerly. The German boys have certainly acquired through this practice a surprising command of Latin."‡ And at the present time, I believe, the power of speaking Latin is cultivated to a high point in many Roman Catholic, and especially in the Jesuit, schools.‖

Thus the great prominence given to Latin in the early stages of much of our secondary education is a faint survival of the state of things when Latin was a living international language. There is no longer any reason for teaching Latin for purposes of oral communication between persons of different nationality. French, German, and English are the languages which, for most purposes, take the place which Latin used to fill. There are, it is true, welcome signs of a growing tendency to re-introduce the habit of speaking Latin in secondary schools. In the Realgymnasium at Kiel the three highest classes are now speaking Latin as part of their Latin lessons. Ultimately, I have no doubt, much more will be done, in some schools, to *begin* the teaching of Latin with more Latin conversation. Such a course gives a boy a feeling for the language. But the aim of this revival will be to enliven and abridge the course of instruction in Latin, not to furnish the boy with the power of speaking the language for purposes of later conversation in practical life. The tendency of the time is rather to compel us to make such abridgements in our classical curricula, such postponements of Latin and Greek to a later stage, and such improvements in methods of teaching them as will, without in any way banishing Latin and Greek from our curricula, afford more time during early boyhood for the acquisition of accuracy and fluency of expression in at least one (and possibly in two) living languages besides the mother tongue.

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* *Letters of Thomas Gray* (Bell, 1900), Vol. I., p. xxvi.

† *Autobiography* (Longmans, 1893), pp. 5-6.

‡ Report of Schools Inquiry Commission, Vol. VI., p. 583.

‖ In the Roman Catholic College at Penang, where native students from all over the Far East were trained for the priesthood, the language spoken by the students, down to three years ago, was Latin. At that time the great increase in the number of Burmese students caused English to be made the language of intercourse in the college.

For boys who have a natural aptitude for classical scholarship let there be access to schools where the classical tradition is preserved and cultivated in its highest form. But can it be maintained that, for the ordinary type of mind and for the common range of modern interests, a predominantly classical education any longer best meets the needs of the case? Supposing that the United States of America had talked German, would not that language have by this time made far greater encroachments on the classical curricula of our English public schools? Yet it is not necessary, and still less would it be desirable, to exclude the classics from our secondary education. Latin, not to speak of Greek, will continue to be, in many branches of study, absolutely necessary for research. But could not a good deal more be done to devise methods for beginning Latin or Greek at a much later stage in secondary education? Would it not be possible to give intelligent boys, at an expenditure of time which, as compared with the present arrangements, would be small, sufficient mastery over Latin (and, if necessary, Greek) to quicken their interest in classical history and literature, and to enable them to make their own way, in their later studies, through authorities written in those languages?* I am thinking of boys who will want to *use their knowledge of Greek and Latin afterwards*, and who, if well started at school, will be certain to improve their knowledge of both languages in later years. Would it not be well to encourage schools, of the same grade in national education, to excel in very different types of intellectual training? One set of schools might carry a classical education to the highest possible point of interest and thoroughness; another set might aim at providing the best possible non-classical education in the world; another at developing, to a very high degree of excellence, a scientific and manual training. Provided that the types of school were clear, and each as good as it could be made, boys would tend to get sorted according to their aptitude and interests. This is not an argument for mere specialisation; but in favour of every school having some marked intellectual characteristic. Each would give a liberal education, but the "high lights" would be different. And, just as in a school which mainly relied on some form or other of linguistic discipline, it would be essential also to cultivate an intelligent interest in physical science, but in a subsidiary way; so also in schools which devoted most of their time to physical studies, there would need to be excellent and systematic teaching in French and German, and training of the literary and historical interests and of the power of ready and accurate expression. Similarly, in a school with a predominantly non-classical curriculum, care would be taken to encourage

* Many of the educational tendencies of the present time recall in a striking manner the theories and experiments of Basedow. He devised (1752-68) a new method of teaching Latin, with a view to shortening the time generally given to the subject.

the study of classical history and literature, and to give the pupils some insight into their bearings on modern life. It is sometimes forgotten how pleasant and useful a possession a somewhat slender knowledge of a great language may become. Goethe and Schiller were both weak in Greek, yet no one will maintain that they did not enjoy, and help the world to enjoy, the beauties of Greek literature. And for many purposes of interesting study, even if a man's Latin is "Priscian a little scratched: 'twill serve."

There are many signs, at the present time, of a strong revival of interest in classical studies, and of a desire to secure opportunities for their free development in national education. In Germany, the best interests of classical education have been threatened by two very different, but not unrelated, causes—pedantry and privilege.

A rather arid kind of classical philology seems to have got hold of many of the German Gymnasien during the middle years of the nineteenth century, and to have done much to impair the educational value of much of the teaching. The natural reaction against this kind of "classical education" is illustrated by the following letter, written by the present Emperor of Germany in 1885, but only recently published.

"Potsdam, April 2nd, 1885.

"Geehrter Herr Amtsrichter,—Accept my heartiest thanks for the two pamphlets which you sent to me. I have read 'What we are Suffering From' with great interest and still greater pleasure. At last, then some one has stepped forth to attack with energy this petrified and most soul-killing of all systems. I subscribe to every word you have written. Fortunately I had two and a half years in which to convince myself of the manner in which our youth are sinned against. On many things which you adduce I have myself pondered in silence. To mention only a few: Of the twenty-one 'Primaner' who composed our class nineteen wore spectacles, and of these three had to call in the additional assistance of a pince-nez in order to read what was on the blackboard!

"Homer, the glorious man, for whom I greatly 'enthused,' Horace, Demosthenes, whose orations must inspire everyone—in what manner were they read? With any enthusiasm for the descriptions of the battle, the arms, or of nature? Heaven forfend! Every sentence was divided and quartered with the dissecting knife of the grammatical, fanatical philologists, until the skeleton was smugly laid bare, and the general admiration claimed for the number of manners in which 'an' or 'epi' could be placed. The Latin and Greek essays (a monstrous nonsense), what an amount of time and trouble they swallowed! And what stuff it was that finally was produced. Horace would have given up the ghost at sight of it!

"Away with this rubbish! War to the knife against such teaching! The result of this system is that our schoolboys are better versed in the syntax and grammar of the ancient tongues than the old 'Greeks' themselves, that they know by heart the generals, battles, and order of battle, in the Punic and Mithridatic wars, but are very much in the dark concerning the battles of the Seven Years' War, to say nothing of the 'far too modern' wars of '66 and '70, which they have not 'yet had'! ! !

"In regard to the physical aspect of school life, I am decidedly of the opinion that the afternoon should be free once and for all. The 'Turnunterricht' (gymnastics hour) ought to give the boys pleasure. Obstacle

races and climbing would be valuable innovations. In the towns where there is a garrison it would be very desirable if two or three times a week a non-commissioned officer were to train and drill the elder boys with the aid of poles, and in place of the so-called class-walks (with elegant walking-sticks, black coat, and cigar) a regular march with some field service, even if it were to degenerate into games and horseplay, would be preferable.

"Our 'Primaner'—we unfortunately had the same faults—were far too *blasé* to take off their coats and get to blows. What can one expect from such little people? *Guerre à outrance*, therefore, against this system. I am right willing to assist you in your effort. I am rejoiced to meet with one who speaks 'German' and acts with energy.—Yours,

"WILLIAM, PRINCE OF PRUSSIA."*

The other enemy to the best interests of classical education in Germany has been the monopoly of certain privileges enjoyed by the Gymnasien. The attempt to establish the Gymnasium in an assured position of social prominence defeated its own object. It made it necessary to impose on the classical schools the impossible task of meeting by one curriculum a number of discordant intellectual needs. It also crowded the classical schools with numbers of boys whose real intellectual interests would have been best met by other studies. Hence there is now a movement to give the Gymnasium much greater freedom to develop its own classical interests. This may involve numerical loss in point of scholars, but it will entail a far greater intellectual gain. One of the most striking features in the report of the Berlin Conference on Secondary Education in 1900 is the memorandum on "Greek Teaching in the Gymnasium" submitted by Dr. von Wilamowitz-Möllendorff, Professor at the University of Berlin. This memorandum contains a powerful argument in favour of the extension of Greek studies in the classical schools, and of a strenuous effort being made to inspire a more living interest in the bearing of Greek thought on modern problems. The motto of it may be said to be "Back to Wilhelm von Humboldt." Just as the excessive utilitarianism of Basedow (1723–1790) was one of the causes of the great reaction in favour of the classical humanities which quickly followed it, so at the present time the commercial tendencies of the age are rousing into renewed antagonism those who believe that disinterested studies are alone worthy of the name of liberal education. The main contention is that in the classical schools boys should be given some larger conception of the immense range of Greek influences,† and, to that end, Dr. von Wilamowitz-Möllendorff appended the outline of a suggested Greek reader, through the pages of which boys might become acquainted with a much larger number of Greek writers than is possible within the somewhat narrow range of the present studies. The professor's actual proposals seem open to the criticism that they could only be effectively carried out by

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* *Morning Post*, January 22nd, 1901.

† *Verhandlungen über Fragen des höheren Unterrichts, Berlin. 6 bis 8 Juni*, 1900. (Halle, 1901; pp. 205–17.)

teachers possessing singular enthusiasm for Greek culture and great educational skill. In the hands of a gifted and enthusiastic teacher the scheme would be admirable, but nearly everything would depend on the teacher being exactly qualified for the work.

The general aim of the memorandum may be summarised in the words of a recent English writer on the "Jeopardy of Greek."

"What we want . . . seems to be more reading and less grammar, more humane and less mathematical methods of instruction, less worship of the fetich 'Attic,' a wider recognition that in a literary study of Greek lies its salvation."*

The Royal Decree of November 26, 1900, ordains that, in the teaching of Greek in the Prussian secondary schools, decisive importance is to be attached to the discarding of useless matters of form, and that every care must be taken to develop the pupils' æsthetic sense, and their perception of the close connexion between the ancient world and modern culture.

Another indication of the rising movement in favour of Greek studies in Germany is seen in the recent publication, by the rector of the famous Landesschule Pforta, of an appeal on behalf of the classical humanities as an essentially necessary part of national education, especially in an age of threatening materialism, and of profound unrest.† There is much in his argument which recalls words used by Matthew Arnold in the preface to his poems published in 1853.

"The present age makes great claims on us: we owe it service, it will not be satisfied with our admiration. I know not how it is, but their commerce with the ancients appears to me to produce, in those who constantly practise it, a steadying and composing effect upon their judgment, not of literary works only, but of men and events in general. They are like persons who have had a very weighty and impressive experience: they are more truly than others under the empire of facts, and more independent of the language current among those with whom they live."

It will be seen that the new time-tables for the Prussian classical schools allow time to be transferred from Latin to Greek in the three highest classes, thirteen lessons a week being devoted to the two classical languages§. Moreover, the Imperial Decree recognising, under certain conditions, the intellectual equality of the three types of secondary schools, will doubtless in the end relieve the classical schools of much uncongenial material, and leave many of them free for new developments in higher teaching.

The experience of the last few years seems to have deepened the feeling in favour of giving a free hand both to classical and to non-classical education. There is a strong body of opinion favouring the Realschulen, as less likely than the Gymnasien to over-stimulate speculative ideas among the rising generation. Archdeacon Semler, of Halle, who in 1708 opened the first Realschule in Germany,

* H. W. Auden in *Blackwood's Magazine*, April, 1901.

† *Humanistische und Realistische Bildung*, by Prof. Dr. Christian Muff. (Berlin, 1901.)

§ See Appendix III

definitely announced it as his desire to guard boys against "empty speculations and useless subtleties,"[1] and to occupy them with real things and useful objects. Something of the same idea can be traced in the present development of Realschulen. Yet no course of liberal education can exist without close contact with ideas and ideals as well as with what (by a rather question-begging phrase) are called "facts." Ethical and social problems come within the view of a non-classical, as of a classical, school. But more than ever is it realised that those who would impart interest in political and social and ethical questions through the vehicle of modern history often have to walk

per ignes
Suppositos cineri doloso.

In dealing with classical antiquity, a teacher may, indirectly but not the less effectively, refer to many problems of modern life, with far less risk of incurring suspicion of political propaganda or partisanship.*

(3) The renewed vigour of the advocates of classical education is in itself a tribute to the force of the utilitarian tendency which has caused so much alarm among the friends of liberal education in Germany. But that utilitarian tendency is far from having captured the German secondary schools. Except the specifically commercial schools (Handelschulen), the latter are organised, almost from top to bottom, to resist any undue development of narrowly utilitarian studies. The Germans maintain that a boy will in due time be all the better a man of business if he does not specialise too soon; and that the superstructure of technical knowledge is best raised on a firm basis of general culture.

But "general culture" threatened at one time to become a fetich in German education. Many of the curricula were based on the assumption that, before leaving school, a boy ought to have acquired a mass of information on a great variety of subjects, and that it was expedient for him to carry away with him into life a large store of intellectual capital as a basis for his professional and other labours. Obviously there is much that is sound in this view; but it also has its perils. It took little account of the fact that, as has been well said, "the art of life consists in the appropriate choice of our ignorance." The practical effect of it often was that the boys were made to learn too much. Against this kind of over-burdening there has been a healthy reaction. No one has spoken more emphatically on the subject than did the Kaiser himself at the Berlin Conference on Secondary Education in 1890. "It is absolutely necessary," he said, "that we should reduce the number of hours of work. We ought not to strain the bow further or leave it as

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* See Appendix V. Limitations on teaching contemporary French History in French Secondary Schools.

tense as it is. We must lessen our demands." But it is very difficult to give effect to these views in a country where there is so strong a movement towards higher studies and towards those professions to which the secondary schools are the gate. The effect of the new time-tables of 1901 will be actually to increase the number of weekly lessons in the three highest forms of all types of nine-year schools.

It remains to be seen how far the growing commercial and industrial interests of Germany will affect the studies in secondary schools. Many of the Realschulen take a legitimate pride in their success in giving an air of "reality" to their lessons.* And it can hardly be questioned that there has been during the last twenty years a distinct growth in Germany of a feeling that the secondary schools ought to pay regard to the practical needs of business and of modern administration.† But the tradition in favour of a liberal education is so strong, and the practice of the schools is so carefully adjusted to the claims of a well-proportioned intellectual development, that Germany is far less likely to suffer than are England and America from the ill-considered pressure of those who expect from the schools what it is not the true business of a school to give. We may readily admit the truth of the old saying, *Non scholæ sed vitæ discendum.* But what a school giving a liberal education has, above all things, to keep in view are the wider and more lasting concerns of life, not the mere dexterities of livelihood. "There is much dispute," wrote the late Rector of Lincoln College in 1880, "as to what should be taught in middle schools. Let the answer be, *that which humanises.* The aim of the school is not the storing of the memory with knowledge. That, and that only, is education which moulds, forms, modifies the soul or mind."

(4) In his address to the Conference on Secondary Education

* Herr Lehmann (*Erziehung und Erzieher*, 1901) points out that the development of German commerce and sea-power is having a distinct influence on the ideals of German education, and that it is leading (in the maritime districts especially) to increased attention being given to the English language, and, it may be added, to the history and geography of the British Empire, and to the significance of sea-power. Is it not historically significant that the new Royal Decree on secondary schools in Prussia, which marks a new era in Prussian education, was signed last November on board the "Kaiser Wilhelm II." at Kiel? There has recently been published in Leipzig a "Naval Reading Book" for the use of higher and middle schools, its motto being the words "Germany's future lies on the water," and its aim to interest German boys in naval and marine subjects.

† The German Foreign Secretary (Baron von Richthofen) recently took occasion to comment on the fact that "the Gymnasien are entirely deficient in the machinery for educating our officials. The junior members of the Civil Service can neither write French nor read English." (*Times*, June 10th, 1901.) The Royal Decree of November 26th, 1900, directs that in the teaching of modern languages in Prussian secondary schools fluency in speaking should specially be aimed at as well as the accurate understanding of current authors.

held in Berlin in 1890, the Kaiser said that, in his opinion, the Prussian secondary schools, and more especially the Gymnasien, "had caused an excessive over-production of highly educated people, more than the nation could bear and more than the men so educated can bear." These words recall the saying of the Duke of Wellington. "You are over-educated for your intellect." The Kaiser went on to say, "the expression 'academic proletariat,' which we owe to Prince Bismarck, is a true one. The whole body of so-called 'Hungerkandidaten,' especially those gentlemen who write for the Press, are a danger to us."*

In the Royal Decree issued in November, 1900, as a result of the deliberations of the Berlin Conference on Secondary Education, it is expressly stated that the Abschluss-prüfung has disappointed expectations and "has not arrested the excessive rush to the universities."*

The growth of German industry and commerce will probably do something to relieve the congestion of the learned professions, of which many Germans complain.

(5) It is generally recognised that the German schools and the German schoolmasters have had a great deal to do with the establishment of German unity. Speaking in 1895, Prince Bismarck said:—"If I had not found in our nation the preparatory work of the secondary teaching profession, I do not believe that my work, or the work in which I have collaborated, would have met with such success."†

But this was not the only comment which Prince Bismarck made on the working of the German higher education. On another occasion he said:—"We shall be ruined by examinations; the majority of those who pass them are mentally so run down that they are incapable of any initiative ever afterwards. They take up a negative attitude towards everything that is submitted to them, and what is worst of all, they have a great opinion of their capabilities because they once passed all their examinations with credit."‡

With regard to the results of German secondary education on the formation of character, I may quote three recent expressions of opinion—one that of an English observer, the other two from the pens of German writers. A few weeks ago, the well-informed Berlin correspondent of the *Times* spoke of "the class of German men of business" as being "unsurpassed in intelligence and energy." These men are the product of German secondary education, and, in large measure, of the Realgymnasien in particular. The correspondent went on to contrast unfavourably, with the

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* See Appendix I.

† Quoted in Mr. Ware's *Educational Foundations of Trade and Industry*, p. 288.

‡ *Conversations with Prince Bismarck.* Von Poschinger. Ed. Sidney Whitman. (Harper, 1900) p. 290.

men of business, the German official classes, who are the product, for the most part, of the Gymnasien. "The German official classes, with few exceptions, have become pitiably inferior in ability and enterprise to the Germans who are making their nation respected and influential throughout the world."* In this connexion, it should be remembered that an active and intellectual form of business life is one of the finest practical educations in the world; and that when such practical experience is superadded to the sound basis of a liberal education, the man who acquires it often goes on developing intellectually far longer than those of his contemporaries who have adopted a career of more subordinated activity and of less strenuous effort. One inference to be drawn from the correspondent's remark is that German commerce and industry have derived great advantage from the excellence and liberal character of German secondary education. The German view is that intellectual narrowness in business is only another form of pedantry. The leaders of German industry and commerce are resolutely opposed to any narrow form of commercial education. They would endorse the view of the writer in Addison's *Spectator* that "a man who has been brought up among books and is able to talk of nothing else, is a very indifferent companion, and what we should call a pedant. But we should enlarge the title and give it to every one that does not know how to think out of his profession and particular way of life."

The second expression of opinion, to which I referred above, is contained in a work recently published by an experienced German schoolmaster. He maintains that during the last generation the German nation has lost much of its former moral idealism, but gained greatly in its collective public spirit. Opinion moves more in masses than it did. The older kinds of individualism have been weakened. This has naturally led to the diminution of strong individualities of character. On the other hand, there seems to be more consciousness of class and social distinctions—partly in consequence of the need of some barrier against the levelling forces which tend to efface many of the older social landmarks. In another part of his book, he tells his readers that he had occasion to reproach a young man for the weakness of purpose which he showed on a critical occasion. "It is all the fault of our education," the youth replied, "we are always kept in leading strings both at school and at home; how can you expect us to have strength of purpose?"†

The third expression of opinion is contained in an article on "The Importance of Example in Education," by Dr. Wilhelm Münch, Professor at the University of Berlin. He is referring to the teaching of history in secondary schools, and more especially to the moral danger involved in that kind of history teaching which, with a great show of scientific generalisation, affects to explain all heroic action

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* *Times*, May 4th, 1901.

† *Erziehung und Erzieher*, by Rudolf Lehmann. 1901. pp. 47–50, p. 121.

and individual effort as being but the necessary outcome of historical conditions and of environment. Such teaching, he suggests, may weaken in the pupil's mind a conviction of the moral power of the individual will, and thus impair his strength of purpose and of character.* The German mind is sensitive to intellectual suggestions. It quickly takes colour from ideas to which the mind of the ordinary English boy would be healthily, if somewhat obstinately, impervious. Probably the characteristics of the German mind have had a good deal more to do with determining the form of German education than the latter has had to do with determining German intellectual tendencies. But the school is a powerful cause, as well as an effect, of national characteristics. And it is not improbable that the latent assumptions of certain kinds of history teaching (the assumption, for example, that economic causes are sufficient to explain all social and even many spiritual movements) have been not without their influence on some parts of German character. History is one of the most difficult of all school subjects to keep clear from mischievous bias. It may easily become (without any conscious unfairness on the part of the teacher) a channel for diffusing false ideas both as to the past and the present. Some German writers seem to think that, by adopting the historical treatment of many controverted subjects, we should escape many of the educational difficulties which arise out of our moral and intellectual disagreements.† But is not such a view too sanguine? Does it not unduly overlook the fact that the fundamental differences lie in our judgment as to the moral worth and significance of contending aims and beliefs; and that, though we may rid ourselves of much misunderstanding by trying to see things in their historical perspective, and though we may root out many false impressions from our minds by going back to the evidence for the facts on which those impressions are supposed to be based, nevertheless some of the deepest causes of our disagreements are inherent in the facts themselves, and neither side can necessarily accept as dispassionate, or as accurate, or as sufficient, the "history" relied upon by the other? History plays an important part in the curriculum of German schools, and it is much to be hoped that the subject may be made (as abundant experience shows it can be made) a powerful factor in our English education also. But all depends on how it is taught. The mere cramming-up of text books is worse than useless. The teacher must be, by natural aptitude and instinct, an historical student himself, or he cannot hope to infect his pupils with a love of the subject or to impart to them the attitude of mind which approaches all questions from the point of view of their history and development.‡ But it

* *Über Menschenart und Jugendbildung*, pp. 213–14 (and footnote).

† Especially Professor Rein. *Am Ende der Schulreform?* p. 40. (Langensalza, 1893.)

‡ *Cf.* Prof. Withers' lecture on the Teaching of History in England in *Education in the Nineteenth Century* (Cambridge University Press, 1901), especially p. 115

is just here that a new and more insidious danger arises. In the teacher's view of "development" there is necessarily a latent theory as to the general nature of human progress, and of its relation to unseen forces. In German education, this abstract side of things is made more prominent than in English. The German always tries "to think things out." And excellent as is this mark of German thought and teaching, it leads nevertheless to the danger of too much abstract generalisation in various subjects, and especially in history. A leading authority on German education, from whose writings I have already quoted, warns the German teachers against this special tendency to put things too much in the abstract, and too little in the concrete.* The Royal Decree of November 26, 1900, directs special attention to the fact that, in the teaching of history in the Prussian secondary schools, "two gaps are still felt: the neglect of important periods of ancient history, and the too slight treatment of German history of the nineteenth century, so full of stirring memories and of great deeds for the Fatherland." There seems, in fact, to be in many quarters a feeling that the critical, abstract, generalising kind of history teaching has in some ways had mischievous results on the minds of the pupils. There is a reaction in favour of a more ethical and human treatment of history, the picturing of great characters, the telling of heroic deeds, the clear presentment of facts, rather than generalisations from the facts. Thus, as in so many other points, there are signs of a closer approximation to the English view. But, after all, no small part of the difficulty remains, because our choice and judgment of great characters and of heroic struggles depend in large measure on the ethical presuppositions which underlie our view of history. Those presuppositions may be latent or unconscious, but they exist and have their influence nevertheless.

Every kind of education has the defects of its qualities, and the severe intellectual discipline, through which German boys have to pass at school, must in many cases somewhat impair their physical strength. Still more frequently must it debar them from enjoying the pleasures of outdoor games and exercises as regularly and as heartily as is the case in England. There is a marked tendency in German educational literature at the present time to hold up to admiration the games in English schools. Professor Wilhelm Münch has recently expressed regret that in German schools the masters do not find pleasure in taking part in the boys' games as they do in England;† and Herr Lehmann observes that the example of the English, who have been the first among modern nations to lay great stress on the care and physical development of the body, has of late years been having an ever-growing influence on German ways of life.‡ There is no doubt that a good deal of

* W. Münch, *Über Menschenart und Jugendbildung*. 1900. p. 207.

† *Über Menschenart und Jugendbildung* (Berlin, 1900), p. 205.

‡ *Erziehung und Erzieher*, p. 31.

the success of many of our schools in forming character is due to the place held by school games in our secondary (and, happily more and more, in our primary) education. One result of our school games is that there is probably no country in Europe in which so large a number of boys are heartily sorry when they come to the end of their schooldays as is the case in England. It is an indication of the growth of opinion in favour of school games in Germany that the Royal Decree of November 26, 1900, directs that in the Prussian secondary schools more attention shall be paid in future to physical exercise, and to the need for longer intervals for recreation.

(6) An American writer, when touching on some of the defects of the German school system, remarked in 1898 that, "for upwards of a century, the management of the schools has steadily been becoming more bureaucratic. . . . Year by year new regulations are made which tighten the grip of the central authority, and leave correspondingly less freedom for local option. The trend is towards officialism and formalism."* This is a feeling which has been strongly expressed by many German writers.† No one, however, has rendered such brilliant service to the cause of educational freedom in Germany as Dr. Friedrich Paulsen, of the University of Berlin. His great work on the history of German higher education‡ contains many powerful arguments against excessive bureaucratic interference with education. Education, he argues in effect, is largely a spiritual process. You cannot cage it in by administrative contrivances. You can help it by organisation, by encouragement, by counsel, by money grants, above all by granting it large liberty for self-development. But you cannot predetermine its course by State rules; no one can fully predict the right lines of its future development; you must trust, in large measure, to the good judgment of the nation, above all to the good judgment of those who actually need the schools. The essential things in education are intellectual interest, freshness of teaching, human sympathy, devotion to high aims. These are spiritual things, and the spirit, like the wind, bloweth where it listeth.

"In no sphere," says a German writer, "is the deadening influence of bureaucracy so perilous as in education, unless indeed we do not care at all whether our schools are, or are not, permeated with the bracing spirit of manly independence. What will become of a nation when the intellectual vigour of those who are destined to be its leaders is reduced betimes to respectable mediocrity, and

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* Dr. Russell, *German Higher Schools* (Longmans: New York and London, 1899), p. 412.

† For example by Dr. Paul Cauer in *Staat und Erziehung* (Kiel and Leipzig, 1890), and R. Lehmann in *Erziehung und Erzieher*, 1901, especially p. 137.

‡ *Geschichte des gelehrten Unterrichts auf den deutschen Schulen und Universitäten.* (Leipzig: Veit. Second edition. 1896. Two volumes.)

when the rising generation is led to think, by the importance attached to certificates and diplomas, that a man's real dignity depends on the number of examinations which he has managed to pass?"

To an English reader one of the most striking features of many recent German criticisms on their secondary schools is the often expressed desire for more freedom of educational development. "Our German education," says a recent writer, "is too much cabin'd and confined. We must preach freedom as the remedy." In some measure this movement may be traced to the far-reaching influence of Professor Paulsen's book; but it is chiefly due to the pressure of practical necessity, and to a consciousness of the danger induced by elaborate State restraints. The old ideal of the Gymnasium was to produce "all-round cultivated men" to serve the State. But what is "all-round cultivation"? Fifty years ago the answer seemed to most persons simple enough. But to-day the position is very different. Knowledge has increased so enormously in bulk; the problems of Government are so much more complex than they were; the range of possible usefulness to the State is so much wider than it used to be, that the attempt to give, in one type of school, the whole of what can justly be called "liberal culture" broke down hopelessly and finally. Hence began the differentiation of schools, and the recognition of three marked types. But the next stage in the process was the recognition of the fact that, within each type of school, there is also urgent need for still further freedom to differentiate. It must not be forgotten, however, that "crossing" of curricula is almost as complicated a question as "crossing" a breed of animals. Violent "crossing" may destroy what has been gained by slow increments of experience through many years. Yet variety, adjustment to local needs, and permission to develop individual characteristics, are all becoming more necessary and more inevitable. The distinctive mark of the Royal Decree on Prussian Secondary Education, issued in November, 1900, is its recognition of the need for more freedom of educational development. Many Germans fear what they call "Americanismus," and some recent changes in German education certainly imply a closer approximation to the standpoint of Emerson, who said that "education often wastes its efforts in attempts to thwart and balk the natural magnetism, which, with sure discrimination, selects its own," and that "what we do not call 'education' is more precious than much of what we call so."

Any belief, however, in mere *laisser-faire* in regard to national education is the last thing which most Germans would be likely to hold. They are convinced that the State, as representing the community, must play a decisive part in educational administration. They are well aware that more "freedom" may be enjoyed under a well-adjusted and skilfully maintained system of State organisation than is usually attainable in a mere scrimmage of ill-regulated private interests. But it remains to be seen how far the Germans will reach a practical agreement as to the right limits of State control

over so sensitive a part of national life as education must ever be. It will indeed be a conspicuous triumph of organisation if they succeed in combining the high intellectual standard which the State has helped to uphold and enforce, with the variety of educational experiment which seems to be called for, more and more impatiently, in view of the complex and ever-changing needs of modern life.

(7) The attitude of public opinion and of the Prussian Government towards the remarkable experiment known as the Frankfurt Curriculum shows the same tendency towards freedom of educational development. The chief features of this experiment have been fully described in an earlier volume of this series.* Its object is to secure a common curriculum for the three earliest years of secondary school-life (*i.e.*, from nine to twelve) by means of the postponement of the beginnings of Latin teaching till a boy's twelfth year. Certain administrative advantages would be secured by such an arrangement, as, instead of having three separate schools in a town (classical, semi-classical and non-classical), there might be one school with a common foundation of three years study, out of which would rise three (or two) alternative courses of six years' further study, between which alternatives a boy's parents would have to choose when he was twelve, instead of (as is normally the case) when he is nine. Thus, instead of having three parallel types of school, each wholly separate, the "Reform School" would rise like a three-pronged fork out of a single handle.†

The Frankfurt Curricula have been a subject of almost incessant debate in German educational circles during recent years, and few scholastic experiments have had the advantage of being commended to the general, as well as to the expert, public with such lucidity of thought, such charm of style, and such insight into the significance of social movements as characterise all Dr. Reinhardt's articles and addresses on this important subject. It is not too much to say that the reader rises from the perusal of any of Dr. Reinhardt's pamphlets with a deepened respect for the writer of them and with a warmer admiration for his literary skill.‡

Opinion is very far from being unanimous as to the wisdom of

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* *Special Reports on Educational Subjects.* Vol. III., pp. 200–212 and 461–472. For the curricula, see Appendix IV. below. I have not discussed the Altona curriculum in the present paper, because the Frankfurt plan is now being taken as the best model.

† For a suggestion on these lines as regards English secondary education, see Mr. S. R. Hart's paper on *Languages in Secondary Day Schools*, in Vol. viii. of this series.

‡ The following references may be found useful:—*Die Frankfurter Lehrpläne* (Frankfurt a/M. 1892. Diesterweg); *Die Umgestaltung des höheren Schulwesens* (Frankfurt a/*M*. 1892. Diesterweg); *Die Bedeutung des gemeinsamen Unterbaues für die höheren Schulen* (Comenius-Blätter. 1899. Nos. 7–8. Berlin: Gaertners Verlagsbuchhandlung). Also see Dr. Reinhardt's speeches at the Berlin Conference on Secondary Education, 1900, especially pp. 45–50.

the Frankfurt Curricula. The upholders of the view that each school ought to have a precise aim towards which to direct its activities resent the tendency to turn a school into "a maid-of-all-work."* Those who want an intenser and more prolonged course of classical education in the Gymnasien naturally object to any proposals which would put off the beginning of Latin to twelve years of age and of Greek till fourteen. Others maintain that the Frankfurt experiment has been tried under too favourable conditions, and that therefore there is no certainty that it would succeed equally well elsewhere. For example, it is alleged (with what truth I cannot say) that the teachers in the Reform School at Frankfurt are specially good; that the boys are picked material (the stupider boys in Frankfurt going to other schools!); and that (in the Goethe Gymnasium, particularly) the classes are remarkably small when compared with the ordinary German practice. Others, again, object to the plan of beginning French before Latin, "the daughter before the mother."† But the chief reason for opposition is dismay at the idea of the surrender of the citadel of classical education, and at the almost necessary abandonment of some of the present methods of teaching.

The Frankfurt plan, however, does not propose to supersede all other plans. It only claims to take its place among a number of varying curricula. Perhaps there was a time when its advocates took a little for granted the possibility of its general adoption, but that is frequently the case with the promoters of educational novelties. It may be granted also that the plan implies first-rate teaching, and small classes, and a very careful use of every hour of school time. Doubtless, too, it will involve a heavier strain on the strength and energies of the teachers.

This point is a serious one, and calls for some further consideration. One of the most striking developments in German education during recent years has been the rise of "the new method" in modern language teaching. The details of this "new method" have been fully described in an earlier volume of this series,‡ and need not be recapitulated here

But the successful application of the "new method" throws a considerable strain on the teacher, and recent researches have disclosed the fact of a somewhat alarming rate of mortality among the modern language masters in Prussian secondary schools. Among the Prussian secondary schoolmasters, in general, there is a rather high mortality, the statistics for the ten years 1888–97

* For this point of view cp. F. Hornemann, *Die neueste Wendung im preussischen Schulstreite und das Gymnasium* (Berlin: Reuther und Reichard, 1901), especially pp. 32–33.

† For some of the above and for many other criticisms, see Prof. Dr. Fritsch, *Das Reform-Gymnasium mit besonderer Beziehung auf Hamburg.* (Hamburg: Herold, 1901.)

‡ *Special Reports on Educational Subjects.* Vol. III. Also sectionally reprinted under title of "Special Reports on Modern Language Teaching." (Eyre and Spottiswoode. 6½d.)

showing that they die on the average four years earlier than their fellow-citizens. But the case of the modern language masters is especially bad, as during the same period of years their deaths occurred on the average no less than ten years before the period of normal expectation.* A distinguished professor of education in Germany is reported to have said that "the number of modern language masters who have broken down is very great. Nearly all of them are out of sorts. What is the result of the number of lessons they have to give? We are constantly hearing now that one, now that another, has broken down." This is partly due to the intense interest which these men take in their work, and to the energy with which they constantly visit foreign countries during their holidays in order to improve their knowledge and pronunciation of the languages which they teach. But their actual hours in school are long, and during the lessons the strain is almost incessant.

Care will be necessary if the good of the "new methods" is to be got without paying an undue price for the reform. And, in this, as in so many other educational developments, the new improvements presuppose special ability and aptitude on the part of the teachers. No merely mechanical application of the new methods will suffice. More than ever depends on the personality, the natural gift, and the practised skill of the teacher. What has been said of naval enterprise may also be applied to education. History shows that "good men with poor ships are better than poor men with good ships."† Good teachers with poor methods are better than poor teachers with good methods. What is wanted is that the good teachers should have the most improved methods, and the good sailors the most improved ships.

A secondary schoolmaster in Frankfurt-on-the-Main has recently published a pamphlet which contains a number of interesting criticisms on the "new method" of teaching languages.‡ He declares that the results have not always been proportionate to the great efforts put out by the teachers to secure them. He refers to the exhausting nature of the work which they often entail. He protests against the excessive use of illustrations, and against the tendency to make things too easy for the pupils. He points out that some of the advocates of the new method were at one time inclined to attach too little weight to the claims of grammar. In short, he argues, the "new movement" represented a reaction against a rather stupid kind of routine, and, like nearly all reactions, went a little too far. What is wanted is a just balance between the old method and the new. This is the opinion which seems to have gained most ground in England during recent years. But,

* *Der höhere Lehrerstand in Preussen, seine Arbeit und sein Lohn*, by Dr. H. Schröder (Kiel and Leipzig: Lipsius and Tischer, 1899), pp. 47–55.

† Mahan, *Influence of Sea Power upon the French Revolution and Empire*, 1793–1812. (Sampson Low. 1892.) Vol. I. p. 102.

‡ Dr. Paul Wohlfeil, *Der Kampf um die neusprachliche Unterrichtsmethode.* (Frankfurt a/M.: Neuer Frankfurter Verlag, 1901.)

in any case, it is not the method in itself, but the teacher who uses the method that chiefly matters. The personality of the teacher, his artistic skill, and his love of his work matter even more than they mattered before.

The "Frankfurt Reform," in secondary school curricula, is so closely bound up with the introduction of new and brisker methods of teaching (in the classical, not only in modern, languages) that it is still too soon to pronounce with any confidence on the success of the experiment. But the statistics show that the new scheme has met a widely-felt need. In Prussia no less than sixteen Gymnasien and Realgymnasien have been remodelled on the Frankfurt plan, while in Germany, outside Prussia, seven more have adopted the same arrangement. But the details of the organisation vary a little in various places. The Altona plan has been adopted in five cases. The following table shows how the Reform Schools (whether on the Altona or Frankfurt lines) are distributed at present among the different provinces of Prussia :—*

East Prussia - - -	None.
Posen - - - - -	
Pommern - - - -	
West Prussia - - -	1 [Danzig.]
Schlesien - - - -	2 [Breslau, 2.]
Brandenburg - - -	2 [Schöneburg and Charlottenburg.]
Sachsen - - - -	2 [Magdeburg and Naumburg.]
Schleswig-Holstein - -	2 [Altona and Kiel.]
Hanover - - - -	3 [Hanover, Harburg, and Hildesheim.]
Hessen-Nassau - - -	3 [Frankfurt a/M, 3.]
Westphalia - - - -	3 [Iserlohn, Lippstadt, and Witten.]
Rhine Province - - -	3 [Barmen, Remscheid, and Solingen.]

Englishmen may well hope that, in the Reform Schools, there may be found some solution of many of the educational difficulties which press heavily on secondary schools at the present time. It would help many English secondary schoolmasters, especially in industrial districts, if it were found that Latin could be safely put off till a boy is twelve. Would it not be well to try some systematic experiments in England in order to test the point? The general results of such experiments are regarded with satisfaction in Prussia, as is shown by the following passage in the Royal Decree relating to secondary schools in Prussia, November 26th, 1900.

"The establishment of schools following the Altona and the Frankfurt Curricula has on the whole proved beneficial to the places where they exist. Through the fact that the earlier stages of their curriculum are the same as those of the non-classical schools, they constitute no inconsiderable social gain. It is my wish, not only that the experiment should be continued in a manner appropriate to the end in view, but that, where the given conditions prevail, attempts should be made on a more extended basis."

* Summarised from Dr. Meinertz's speech at the Berlin Conference on Secondary Education, 1900. (*Verhandlungen über Fragen des höheren Unterrichts. Berlin*, 6 *bis* 8 *Juni*, 1900, pp. 44–45.)

To sum up, there are many fundamental differences between secondary education in Prussia and in England. The Prussiana know exactly what they have got in the way of secondary schools and secondary school masters. We do not. They know what each school teaches, when it teaches it, and how it teaches it. We do not. They have a clear definition of what they mean by a Higher, or Secondary, School. We have not. They have a clear intellectual aim (perhaps too clear an intellectual aim), and have for years patiently adjusted all the means in their power to achieve that aim. Our aims fluctuate, and (partly with good results, partly with bad) we shrink from formulating them. Their schools are almost exclusively day-schools. Our most famous and influential schools are boarding-schools. Their teachers are all members of the Civil Service; have sometimes to wait till they are thirty-seven years old before they get their permanent positions; are paid according to a definite scale of salaries (lower than those paid to the legal branch of the public administration); have pension rights on retirement; do not keep boarding-houses; are not paid capitation-fees on the number of boys in the school, and have very little to do with the boys outside the school-room. Our secondary school masters are not members of the Civil Service; get their definite appointments much earlier in life; receive incomes which vary between very wide limits in different schools; often have no claim to a pension, and never have one paid by the State; in some cases render the most valuable part of their services to education (and derive the largest part of their income) as masters of boarding-houses; are almost always (if they are headmasters) paid a capitation-fee on the number of boys in the school, and therefore have a direct interest in having a large school; and devote a great part of their life and strength to most admirable work among the boys outside the school-rooms. It would be hard to say which is the more devoted class—the Prussian secondary school masters or the English. But, as a general rule, they are devoted to very different things.

In Prussia, the system of secondary education is organised like a sort of intellectual post-office. Just as with us a red pillar-box connotes certain services promised by the State; so in Prussia, a public secondary school connotes a certain kind of intellectual service guaranteed by the State. With them, the State is the unit; with us, the unit is the institution. Our secondary school system is a federation of more or less independent institutions, more or less conscious of a general community of interests; more or less in the habit of comparing notes on matters of educational experience; and all, though in varying degrees, conscious of the fact that they are doing a great national work. In Prussia the whole system is continually under the watchful eyes of the State. In England, the State knows very little about what is really going on in the secondary schools. In Prussia, secondary education can, so to speak, be audited at an hour's notice. In England, such an operation

would, if ever necessary, be impossible, because no man living knows even the postal addresses of all our "secondary" schools. In Prussia, secondary education has virtually been collectivised. In England, the secondary schools are, in the words of a recent French writer, "citadelles du particularisme." In Prussia, a schoolboy seems to regard his school as he might regard a railway station—a convenient and necessary establishment, generally ugly to look at, but also, for its purpose, efficient. In England a boy who is at a good secondary school cares for it as an officer cares for his regiment, or as a sailor cares for his ship. To him the very name of his school means something which

> "Every one of her sons must hear,
> And none that hears it dare forget."

The Prussians lay stress on knowledge; we, on character. Their schools are meant to manufacture knowledge, and do what they are meant to do. Ours are prized most highly when they turn out men. Prussian schoolboys think a great deal more about their lessons than ours generally do. But ours think a great deal more about the other sides of school life than they. At bottom, the two peoples do not mean the same thing by the word "education." But no nation can stand alone. Year by year, Germans and Englishmen come more and more into contact with one another in the natural course of trade and of other international affairs. Both nations have to meet the same outside tests; and, therefore, each is considering wherein the education of the other is better and deeper than his own. Each finds that the other has much to teach him. But each knows too that he cannot change his nature, or jump off his own shadow, and that his system of national education has not become what it is by accident, but by a very slow and often unconscious adjustment of means to certain necessary ends. In a sense, it is true that every nation has the education it deserves. Yet it would not be possible for Prussia to superadd to its own educational excellence all that is differently excellent in English education. The limits of time and of human strength forbid it. Similarly, neither can we take all that is best in Prussian education and superadd it to what is excellent in the education which we have already. But each can discard something, and (at least, so it would appear) will have to discard it. If they learn too much, do not we learn too little? If we organise too little, do not they organise too much?

If, for a time, the English and Prussian systems of secondary education seem to move in precisely opposite directions, it will be because they are moving towards a common point in the wide space which at present lies between them.

CHAPTER IV.

Movements of Opinion in France and America in regard to Secondary Education.

In order to show that the unrest in secondary education is not local or national, but almost world-wide in its extent and international in its significance, I propose in this chapter very briefly to refer to what has recently been done or written in regard to the subject in France and in the United States of America. Adequately to discuss the question, as it affects either of those countries, would require a book to itself. In France alone there have recently appeared a number of most interesting volumes of the report of the Parliamentary Commission on Secondary Education, over which Monsieur Ribot presides, as well as a large number of other works written from very different points of view, but all devoted to what the French call "the crisis in secondary education." In America the problem, though less immediately urgent, is on a far vaster scale and presents some elements of even greater difficulty. Everywhere the problem is, at bottom, a social and an ethical problem. But it is also, necessarily, an economic problem, and only incidentally a question of the choice of subjects of study, and of the method of studying and of teaching them.

i. In France.

It is perhaps some consolation to us in England, when we hear, or have to make, complaints about our own secondary schools, to remember that, in all the chief countries in the world, the same questions are pressing on public attention. *Nemo sorte sua contentus.* "All over the world," says M. Ribot, "one hears complaints about secondary education."* So universal is the difficulty that a recent French writer has described it as an "educational phylloxera."† And it is still more consoling to realise that both the French and the Germans candidly admit that they have much reason to admire some of the results of the work of our good English secondary schools, and many of the conditions under which that work is done. They admire the long tradition of our great public schools; they admire our healthy (but not our excessive) interest in outdoor exercises and in school games; they admire the freedom of our schoolboys; they admire the part which the boys take in the management of school discipline; they admire our beautiful school-buildings; they admire the patriotism which our great schools evoke among their scholars, past and present; above all, they admire the relations between boys and masters; but, on the other hand, they are very far indeed from admiring the intellectual

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* *Enquête sur l'Enseignement secondaire.* Vol. I., p. 185. (Paris, 1899.

† Pierre de Coubertin, *Notes sur l'Education publique.* (Paris: Hachette, 1901.)

standard of our secondary schools. They speak of it with some contempt, and often fail to realise in how many respects and in how many schools the intellectual work is of high excellence. They judge by the average. Dr. E. von Sallwürk, an eminent educational authority in Baden, has recently remarked, in an appreciative comment on English education, that our English secondary schools suffer from some of the effects of their freedom from State control. No one has the right to prescribe their curricula; but they are often so worried with having to prepare pupils for all manner of outside examinations, that they cannot give quiet and undivided attention to their regular course of study, They are like factories, he says, which take orders of all kinds at any time, and are prepared to deliver the finished goods at whatever time may be desired. Therefore he finds them, as compared with the German secondary schools, lacking in a clearly formulated aim and intellectually disorganised.* A Frenchman, who has had a good deal of experience at an English public school, has summed up his judgment on our secondary education in the following words: "A boy at an English public school has qualities which a French schoolboy does not possess, but those qualities are moral and not intellectual. In English education there is a very weak point—and that is the instruction."† And M. Marcel Prévost declares that the ordinary Englishman of the middle and upper middle classes is less cultivated than an average German, Frenchman, or Italian holding the same kind of position in society.

"On vous dira, je le sais, que les sports tiennent le premier rang outre-Manche, et qu'il faut absolument faire comme les Anglais. . . . Quant aux sports masculins, ils sont en effet répandus, développés à l'excès. Résultat: une nation où l'on doit admirer l'énergie des hommes, sans qu'il soit possible de dissimuler leur faible culture. Auprès d'un Allemand, d'un Français, d'un Italien de même rang social—exception faite de l'aristocratie—un Anglais sincère sera forcé d'avouer l'infériorité de sa culture. La guerre du Transvaal vient d'illustrer ce fait d'une façon mortifiante pour nos voisins. Leur exemple démontre combien il est périlleux de glorifier outre mesure le muscle dans l'éducation. Le muscle est et doit rester l'humble serviteur de la tête."‡

French secondary education has two qualities in consummate excellence. It cultivates and transmits a great tradition of literary style; and it stimulates clever boys to "find themselves" intellectually while they are at school. On the other hand, it has two great defects. It produces too many "functionaries," and it is much too exclusively literary and "intellectual." That is to say, it is weak in physical training: school games are practically non-existent in it; the boys have little chance of free development and of learning to act on their own responsibility; and the form-

* *Deutsche Zeitschrift für Ausländisches Unterrichtswesen.* January, 1901.)

† *Comment élever nos fils.* Joseph Duhamel. (Paris: Charpentier, 1901.)

‡ *Le Temps,* March 7th, 1901.

masters hardly see anything of the boys out of school.* In the third place, it has to contend against three great difficulties: (1) there is an increasing rivalry between the State schools, which are secular, and the private schools, which are conducted by the clergy of the Roman Catholic Church; (2) the desire for social advancement is constantly overcrowding the secondary schools with boys who had better have been educated somewhere else; and (3) the whole system suffers from excessive centralisation.

For some few years past many Frenchmen have been saying such hard things about their secondary education that the foreign reader finds himself beginning to believe that things cannot really be so bad as they are made out to be. This view is happily confirmed by the temperate evidence given by M. Jaurès before the Parliamentary Commission. He said that he did not take so gloomy a view as many of his colleagues about the actual condition of secondary education in France.† But "no one is satisfied with it," says M. de Courbertin.‡ "Our secondary education has been in decadence ever since the Revolution" was the opinion expressed to the Parliamentary Commission by M. Bertrand, Professor of Philosophy of the Faculty of Lyons.‖ "A majority of the pupils in our secondary schools are actually injured by the course of education which the schools provide," said M. Chailley-Bert, general secretary of the "Colonial Union" ¶; and M. Jules Lemaître, of the Académie Française, writing in 1898, thus formulated his judgment on the subject. "I have thought it well over; I have made observation of the young people of my acquaintance; I have examined myself to find out what I owe to Greek and Latin; and I have arrived at this conviction—that instruction in the dead languages, under the conditions in which it is given, is completely useless to nine-tenths of the young Frenchmen to whom it is imparted."§

It would be nothing less than a catastrophe if any social or educational changes were to impair the great tradition of French literary style. The exquisite lucidity and precision of French thought, expressed in, and shaped by, language no less lucid and precise, is one of those great artistic and intellectual traditions which are of priceless value for the future of civilisation. But, as an English writer has recently observed, "literature of a high order is the

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* The *professeur* (*i.e.* the form-master) has practically nothing to do with the boys outside the class-room. This is an essential difference between the life of a French Lycée and that of an English public school. On the other hand, English boys are much more trusted to make right use of their time out of school than French boys are. The latter are much under the supervision of ushers.

† *Enquête sur l'Enseignement secondaire.* Vol. II. (Paris, 1899), p. 38.

‡ *Notes sur l'Education publique*, p. 38.

‖ *Enquête sur l'Enseignement secondaire.* Rapport général, p. 74. (Paris, 1899.)

¶ *Ibid.* p. 30.

§ *Opinions à répandre* (Paris, 1901), p. 117.

product of a long tradition and of a definite social environment. Millions of readers do not make it, nor myriads of writers, though they read the same books and use the same language, and think the same thoughts. A distinctive literature is the typical expression of some organised society, cultivated by long user, and moulded on accepted standards."* This is exactly true of France. The French classical secondary schools are the home of a great literary tradition. The teaching profession is a chief part of the "organised society" which preserves that tradition. The latter, like any other fine artistic tradition, is handed down from master to scholar, partly by precept, but above all by example. It needs its own atmosphere. It needs leisure. It needs detachment from the worries of administration. It has to be sheltered from interruptions. It seems to stand aloof from many of the urgent needs of practical life. Its "usefulness" is almost wholly indirect. Its real concern is with the things which underlie, and ultimately determine, the course of practical government, not with the problems of administration, or even of pastoral oversight, as they incessantly arise. To the "practical man" its votaries may seem useless, too absorbed in their craft, at times even indolent. But their work, when they do it well, is essential to civilisation, and the maintenance and development of the traditional way of doing that work is the essentially valuable part of the labours of the French classical schools. From this point of view it is doubtless the fact that, as M. Gaston Boissier said before the Parliamentary Commission, "French secondary education, taken as a whole, is equal to, even if it does not surpass, that of any other country in the world."†

By no mere accident, but from historical necessity, the great tradition in the French schools is interwoven with the threads of classical education. Unflinching discipline in the forms of expression is the first essential of the training which imparts it. Hence it is necessarily in the main linguistic. Long and severe practice in the use of the mother tongue is the first and a never-ending requirement. Then comes Latin, partly because it is so fine an instrument of linguistic discipline; partly because it stands so near to French; partly because of the fact that French culture and ideals of Government are still largely Roman in their character; partly because Latin is the key to many of the doors through which the student has to pass. "When you study Latin," said M. Boissier, "you have occasion to learn much besides. The important point is that Latin is not an end in itself, but the road to so many other things. Therefore, you cannot curtail the study of it."‡ And, from the point of view that the great literary tradition must be preserved, will many disagree with him? But though Latin is indispensable,

* Mr. Frederic Harrison, "Impressions of America" (in the *Nineteenth Century and After*, June, 1901).

† *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. p. 68. (Paris, 1899.)

‡ *Ibid.* p. 69.

Greek is even more so. M. Lavisse, whose influence in French educational reform may perhaps be compared to that of Professor Friedrich Paulsen in Germany, is quite willing to admit that a man can write good French without having learnt Latin, and that having studied Latin is no guarantee that he can write good French. "George Sand and Alexandre Dumas fils never studied Latin. Prévost-Paradol got into the École Normale through his French essay; so far as his Latin went, he would have failed. And in the great classical period of French literature, La Rochefoucauld did not know Latin."* But M. Lavisse is emphatic as to the necessity for Greek. "We must revive the study of Greek. . . . Greece, not Rome, is the great teacher of antiquity. Latin literature is, nearly all of it, a literature of imitation. The really fertilising literature, rich in thinkers and in philosophy as well as in artistic power, is the literature of Greece. Hellenism must keep its place in the main intellectual current of the national life."† Equally decisive was the testimony of M. Gréard, the Vice-Rector of the Académie de Paris. "Classical culture is the basis of our literature, of our history, and of all our national traditions. It has been the leaven of the genius of France. It is the school of thought—of the thought that liberates and refines."‡ If it be true that some forms of modern influence and enterprise threaten the future of disinterested study, one duty of the present generation is to hold fast to what is of proved excellence in the classical tradition, and to keep it as one essential part, but as one of many types, of national education.‖ The thoughts which animate the leaders of this revived enthusiasm for Greek ideals of thought and life were eloquently expressed in a recent address by one of the greatest of English scholars.

"This conviction that the things of the mind have a worth, an inherent dignity, which cannot be measured in terms of money, is at the root of many Greek ideas on education. If we would pursue knowledge aright, we must love it disinterestedly. Even learning may be followed in the spirit of a shopkeeper, and the intellectual vulgarity thus fostered is more ignoble than the frank avowal of money-getting as in itself the end. Nothing is so truly degrading as the intrusion of lower and mercenary motives into the sphere of the higher activities. Plato (in the 'Laws,' I., page 644) distinguishes between the education which aims only at outward and worldly success and the true, the liberal, education which fits men for perfect citizenship: 'We are not now speaking of education in the narrower sense, but of that other education in virtue from youth upwards, which makes a man eagerly pursue the ideal perfection of citizenship. This is the only education which upon our view deserves the name; that other sort of training which aims at the acquisition of wealth or bodily strength, or mere cleverness, apart from intelligence and justice, is mean and illiberal, and is not worthy to be called education at all.' . . . I am far from suggesting that these Greek ideals, just as they stand, can be transferred to our own age and country. In many points of detail the Greek way cannot be our way. Some lines of necessary divergence will at once have

* *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. p. 36. (*See* also Jules Lemaitre. *Opinions à répandre*, pp. 156–57.)

† *Ibid.* p. 37. ‡ *Ibid.* p. 9.

‖ *Cf.* M. Alfred Fouillée, *Les Études classiques et la Démocratie.*

occurred to you while I have been speaking. Under the stress of our industrial life the principles here indicated will need adjustment, adaptation, limitation. But the principles themselves are, I would submit, profoundly and permanently true. And, in the task of education, perhaps, as much as in any department of civic life, we need a reminder that there are certain ideals of character, certain paramount ends of conduct, which should underlie and determine all our efforts. We are tempted, perhaps, to fix our eyes on the machinery of education, on the subjects of instruction, on the direct mercantile results of our system, on our own immediate ends as the teachers of this or that branch of knowledge. But sometimes we may do well to test and revise our standards; to ask ourselves what, after all, we are aiming at, what kind of human being we desire to produce. In the letters of a schoolmaster who exercised an inspiring influence on many pupils I find the hope expressed, 'that before my time is out I may rejoice in having turned out of my pupil-room perhaps one brave soldier, or one wise historian, or one generous legislator, or one patient missionary.' Not an unworthy hope, I think, for any of us. And how much it means! Success of this kind implies an ideal in the teacher's mind of what a man and a citizen ought to be, and a worthy conception of what constitutes national well-being. It was part of the beneficent function of Greece to emphasise this idea. The Greeks, as I have tried to show, introduced a humanising and expansive conception into the one-sidedness of earlier civilisations. They had a perception of what Isaiah calls 'the things by which men live.' They knew that 'man does not live by bread alone,' that livelihood is not life, that mere wealth is not well-being. The satisfaction of material wants is not the end of human endeavour. The wealth of nations, like the happiness of individuals, has its source deeper than in the accumulation of riches or the expansion of commerce. The true value of the goods of life is determined by the sense of life as a whole, and by their relation to the higher and distinctively human ends of existence. All this may be called idealism. The breath of poetry here touches the common affairs of life, disengaging the things of the mind from the things of sense. It is partly poetry, partly philosophy, for the Hellenic people felt by a poetic instinct truths which their philosophers arrived at by reflection and analysis. It was these truths that gave meaning and reality to the public and private life of the Greeks, to their institutions, their external surroundings, their recreations, their sense of the worth of human personality and human fellowship, so that the practical world was for them lit up by an imaginative ideal."*

But at this point it is necessary to add that not every boy has the natural aptitude for classical study, and that not every classical school succeeds in awakening a really living interest in the classical humanities and in their significance for modern life. The cause of classical education has been greatly injured by the pedantry of some of its professors. M. Lavisse told the French Parliamentary Commission a story about a candidate in an examination who made a statement that a certain goddess had a temple at Thebes. "What!" said the examiner in a tone of severe reproof, "do you really believe that this goddess had a temple at Thebes?" The candidate's face wore the contrite expression of one who repented having committed a grave offence. "But, after all," added M. Lavisse, "the poor boy had so many other things to learn

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* Prof. S. H. Butcher on *Greek Idealism in the Common Things of Life.* Presidential Address to the Teachers' Guild, June 7th, 1901. (Printed in the *Journal of Education* for July, 1901.)

that he might well be ignorant of that."* And classical education has been given to large numbers of boys whose intellectual interests lay in a quite different direction. In order that classical education may enjoy its true influence it needs to be divested of any kind of educational monopoly. The mere diffusion of Latin and Greek teaching will not in itself be a guarantee for the diffusion of what is best in the Greek and Roman ideals of life. What is wanted is the quickening process, which kindles a living interest in the ideas represented by classical literature. Without that quickening process, which is partly spiritual and partly intellectual, classical education is but a dead weight, not a leaven, in national life. A comparatively few centres of intense interest in classical antiquity (not merely antiquarian interest but humane interest) will do far more to influence national culture than a very large number of so-called classical schools which treat the subject in a mechanical way and without any real insight into its spirit. And this is what is felt by the leaders of educational reform in France. They frankly admit that classical education is for the few, not for the many. But they would hasten to add that among the few there will always be many, like Porson, humbly born. Classical education therefore must not be made a merely aristocratic privilege or a social monopoly. In that case, it would be in danger of becoming dilettanteism. The true reason for maintaining it is because it represents ideas which must permeate, and constantly readjust themselves to, the daily needs of common life. "Let us reduce the number of classical schools," says M. Gréard, "and then deepen the classical studies in those which remain."†

For the great mass of boys, it is argued, another kind of secondary education is wanted. But what shall that education be? This is the real difficulty—to find an alternative. The "modern sides" in the French secondary schools seem to have been rather a failure. They have been too "literary" in their aims and methods. They have had to deal with inferior intellectual material. On the whole, their pupils have been drawn from less cultivated families.‡ But it is too soon to judge of the permanent effects of their work. They have had to struggle against a strong social prejudice in favour of another kind of education. Moreover, though their gravity may easily be exaggerated, there are some difficulties inherent in the subject-matter of "modern" education of a literary type, especially when that education is given in day-schools, under official sanction, and in a social atmosphere highly charged with the influences of civil or theological dissension. It is much harder to keep clear of political and other controversies if the teacher tries to use modern history (especially quite recent history) in the same kind of way as Dr. Arnold used Thucydides and Tacitus. During the

* *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. p. 40.
† *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. p. 9.
‡ *Ibid.* Rapport général, p. 65.

last few months, the French Minister of Public Instruction has found it necessary to curtail the freedom of French secondary teachers in regard to the teaching of French internal history since 1875.* In his evidence before the Parliamentary Commission M. Brunetière remarked that, in his opinion, it would be difficult for a teacher, impartial in intention but with strong convictions of his own, to give anything like a searching exposition of the *Lettres provinciales*, or to speak freely about the works of Voltaire or Diderot, or even about the "profession de foi du Vicaire savoyard." You would put such a teacher in an embarrassing position, M. Brunetière suggested, because he would have to deal with questions on which grave differences of opinion exist among the parents of his pupils.†

It would be mischievous to exaggerate this kind of difficulty. Tact and good feeling on the part of the teacher will, under ordinary conditions, protect him from any charge of partiality or unfairness. Sincerity and the power of "speaking the truth in love" are the qualities which, apart from personal example, give a teacher the strongest moral hold over his pupils. A unity of spirit and of purpose may underlie great differences of formulated opinion; and, where such unity of intention exists, most parents will gladly overlook expressions with which they may not agree, knowing that the sincerity and moral earnestness of the teacher will have a good influence on their children, and will stimulate their thought rather than permanently colour their opinions. But this happy toleration is possible only when there is a general agreement not to press things to extremes. In certain states of public opinion, controversy may quickly blaze up through a teacher's happening to refer to disputed questions in ill-guarded terms.

The present drift of French opinion seems to be in the direction of recognising two very different types of secondary education—one, a highly developed kind of linguistic education, based chiefly, though not exclusively, on the classics; and the other a "modern" education, based chiefly, though not exclusively, on physical science. In short, opinion is polarised, somewhat as it was in Prussia in 1890. The tendency is to have an intense kind of classical education on the one hand, over against an equally strongly marked and very distinctly practical "modern" education on the other. But many of the French advocates of the latter are frankly utilitarian and show little of the German belief in the necessity for a liberal linguistic training as the best basis for later success in the practical labours of commercial or industrial life. Possibly it may be that further development of opinion in France will show the need for greater variety in the types of secondary school than appears to be at present contemplated, and not least for instruction of the type given by the German semi-classical schools, which have proved so well-

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* See Appendix V.

† *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. p. 182.

adapted to the wants of many families in the great centres of industry and commerce. This view is confirmed by some of the memorials sent to the Parliamentary Commission on Secondary Education by the Conseils Généraux and the Chambers of Commerce. Among the former bodies, which perhaps may be compared to our County Councils, there is actually a majority (fifty-four out of eighty) in favour of maintaining classical education. Fourteen out of the fifty-four are satisfied with the *status quo*. The remaining forty plead for the maintenance of classical education, but suggest modification in other parts of the national system. The County Council of Loiret, for example, contends that classical education is necessary for the training of an "intellectual élite." The minority of the Councils includes twenty, who petition for the recognition of classical and modern secondary education as of equal value for the cultivation of the mind and as deserving equal privileges at the hand of the law.* But there is considerable agreement in the view that, for some reason or other, "modern" secondary education has failed to realise the hopes that were formed by its promoters. In France, as elsewhere, there are signs that men of business are far from thinking a classical education the worst preparation for commercial life. Social considerations enter into the matter, no doubt, but the feeling is based on educational grounds as well. For example, the Havre Chamber of Commerce replied that "a classical secondary education is an admirable discipline for the mind. It gives precision, keenness of perception, and intellectual discernment. Far from being detrimental to a business career, it enables a man readily to address himself to complex questions."†

The same opinion was expressed by several men of affairs. For example, M. Paul Leroy-Beaulieu wrote that he had never found that having received a classical education hampered him in understanding financial, economic, or colonial questions. "I think," he added, "that we must not try to Americanise France too much. We must not rob France of those traditions, extending over fourteen centuries, which support us far more than they impede us. We must not forget that we are a people, if not of Latin stock, at all events of the Latin tongue."‡

The Parliamentary Commission express the opinion that France wants, not more savants, but more practical men and engineers. They recommend, therefore, that "modern" secondary education should be reorganised in order to supply that need. They also urge, among many other recommendations, the importance of having much more, and much better, teaching in modern lan-

* Emile Bourgeois, *l'Enseignement secondaire selon le vœu de la France.* (Paris: Chevalier Marescq, 1900), pp. 26-32.

† *Ibid.* p. 52.

‡ *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I., 1899, pp. 145-46.

guages.* And, in order that classical education may gain more of the spirit of the Greek humanities, it is necessary that it be relieved from part of the burden which has been laid on it by the philologists.

Nearly everyone agrees that the hours of intellectual work should be reduced in the French secondary schools. The boys are made to learn too much. "The curricula are overburdened," said M. Bréal.† M. Gréard's testimony (and none is more weighty) is in agreement with this. "Lighten the curricula. . . . There is a danger of our sacrificing freshness of intellectual power to the acquisition of masses of knowledge."‡ M. Boutmy wrote: "Two things are necessary in instruction, namely, that the pupil should get knowledge, and that he should learn how to think. The tendency of the organisers of secondary education has been to pay more attention to the first than to the second."‖

Evidently it is the prevailing opinion that a very good classical education is one of the most valuable things which a literary nation can possess, but that it is possible to have too much of it. A limited number of writers and students, trained in a special atmosphere, by well-tested methods, and by men who are themselves students as well as masters of the literary craft are sufficient to keep up and hand on to their successors a great literary tradition. That this limited number should be forthcoming; that they should be trained up to the highest level of excellence; and that, when trained, they should be able to find employment of a kind congenial to their talent and sufficient to support them in reasonable comfort—these things are essential to the welfare of a great literary tradition such as is one of the great glories of France. But the production of literary persons can be overdone. There is a limit to the number of them that a nation can afford to maintain. And it does harm, not good, to encourage a great deal of second-rate literary ability. The difficulty is, under conditions of democratic government, to know where to stop. Moreover, no one can predict where literary ability will show itself. In some nations the gift of literary expression is much more widely diffused than in others. Some nations, again, like some individuals, turn more naturally than others to literature in their search for guidance, happiness, and consolation in life. There seems, therefore, no sort of rule that would help us to fix beforehand what should be the proportions of literary and practical instruction in any system of national education. Different parts of the same country would probably need quite different proportions. For example, it will probably be felt that the following observations, made by the late Mr. F. W. H. Myers, would not apply with equal force to every part of the United Kingdom. They bear very closely

* M. Lavisse told them that, among his students at the Sorbonne, it was very rare to find one who could read English or German fluently. (Procès-verbaux, Vol. I. p. 44.)

† *Enquête sur l'Enseignement secondaire.* Procès-verbaux, 1899. Vol. I., p. 72.

‡ *Ibid.* p. 10. ‖ *Ibid.* p. 216.

on the question now under consideration in France, and derive great importance from the fact that Mr. Myers was himself so eminent a man of letters. The passage is quoted from Mr. W. E. Currey's General Report on the Public Elementary Schools of the Eastern Division of England (comprising the counties of Bedford, Cambridge, Hertford, Huntingdon, Lincoln, Norfolk, Suffolk, and parts of Essex, Nottingham, and Northampton) for the year 1900.*

"You have asked me whether I think that the literary side of education, which has of late years been exposed to more formidable competition from the scientific side than was the case of old, could be carried substantially farther among teachers and scholars of elementary schools, so as to produce a wider acquaintance with the best ideas of our time and a greater power of appreciating literary excellence.

"I do certainly think that in this direction education could gradually be much advanced without any great expenditure of additional time or money, if, in the first place, those who teach the teachers were chosen for thorough competence in such matters, and if, in the second place, the teachers made it a primary object that the children should be initiated into whatever of best has been and is being taught and written in England by poets, philosophers, and critics.

"I doubt, however, whether this would be the best way of spending the children's time. It is not likely, in the first place, that improved literary training would tend to any literary *output* of real value. While scientific attainments are of recognised use almost everywhere, there is such a glut of second-rate literary production that the newcomer in that field can hardly hope to supply any real need except his own. So far as my own personal experience goes, moreover, I find literary talent among elementary scholars much rarer than mathematical—or I should rather say that whereas, from various districts which I have inspected, I could count perhaps a dozen boys and girls whose mathematical faculty has been worth cultivating to the full, I have never observed any indication of native *literary* gifts. Where such a gift exists it is less difficult for its possessor than it is for the boy with a turn for science to educate himself out of school.

"I shall perhaps be thought old-fashioned for adding that I think a child destined to a simple country life is not certain to be the happier for a more intimate introduction into the thoughts and perplexities of the actual age. I speak in no spirit of obscurantism, but the child cannot learn everything; he can learn, after all, very little; and while science is the most stable and progressive manifestation of the thought of our age, it is also often presented in such a fashion as to afford a training in style and diction as well as in reasoning and observation."

Among the older boys at a good secondary school in France there is wont to be a very keen (some Englishmen might almost be inclined to think a precocious) interest in intellectual things. Something of the same sort often happens in England (for example at Rugby in Dr. Arnold's time), but probably not nearly so often as in France. A French author thus contrasts the English and the French habit of mind. "The intellectually-minded Frenchman," he writes, "very often plays with ideas and with chains of reasoning. They charm him apart from any question of their practical results. He is an artist in ideas. If his arguments turn into acts, it is because

* Eyre and Spottiswoode, 1891. Cd. 566.

they happen to have aroused one of his fundamental passions. He then, by a sort of impulse, realises them at once. But, in the English character, the relation between thought and action is quite different. What sways the Englishman is, not the need of thinking but the need of acting. . . . What interests him in the conclusion of a chain of reasoning is, not its wide general bearings nor even its purely abstract truth, but the future reality to which it is the first step and which itself constitutes the end to be realised."*

But there are periods of intellectual and ethical unrest, during which certain types of character are specially liable to suffer from an education excelling in purely intellectual stimulus rather than in practical interests, physical training, and corporate activities. It would appear that this is now felt by some to be the case in France. I will quote on this point two writers, one an English Roman Catholic, the other a leader of French liberal thought. Mr. C. S. Devas writes :—

"Education is no light matter; and the proper harmony and combination of the four great agencies—domestic education, religious education, scientific education, and industrial education, is one of the first conditions of national welfare.

"A common error of those who follow the principles of the French Revolution is to exaggerate the importance of one of the four great agencies of education, namely, the school, and to reduce to little or nothing the influence of the other three, namely, the home, the church, and the workshop. In reality, if we had to dispense with one of the four, the school is the one that could be spared with the least evil. . . . Writers point out that one of the great and growing social evils, especially in . . . France and Germany, is the over-education, *surmenage scolaire* or *Ueberbildung*, producing a crowd of men and women too fine for their surroundings, and unable or unwilling to earn an honest living. The danger, no doubt, is great; the misery caused by this *fabrication de déclassés* is incalculable. But, mark well, the real ground of the evil is not so much the excess of literary education as the deficiency of moral education. These *déclassés* are not so much over-educated as under-educated, because their homes have been disorderly and their schools godless. And the only thorough remedy is to restore good homes and religious influences. For then any excess in literary training will soon fall away of itself, and an appreciation of art and literature be possible for the great multitude, without unfitting them for the duties of their state of life."†

In the course of an address delivered at the College of Social Science in Paris, by Professor F. Buisson, who was one of the creators of the system of State Primary Education now doing so much for the French people, the following remarks occur:—"Something is wanting in this country, but it is not a principle, or a dogma, or a formula. What with us is far too weak is the man himself. . . . What is needed is not knowledge, but moral will."‡

Unhappily, as regards the question how best to strengthen and

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* M. Alfred Fouillée, *L'Individualisme en Angleterre* in the *Revue des Deux Mondes*, Vol. CXLIX. 1898.

† *Political Economy*: Stonyhurst Philosophical Series (London: Longmans). I quote from a review in the *Tablet* of May 11th, 1901.

‡ *Le Devoir Présent de la Jeunesse.* (Paris: Bureaux de la *Revue Bleue*, 1899.)

enlighten the moral will, a great gulf of difference separates from one another many of the noblest spirits in France. And this separation necessarily shows itself, not least, in educational ideals.

There is a marked tendency in France to admire certain sides (but only certain sides) of English public-school education. One or two boarding-schools have been started, not at all in a spirit of mere imitation, but with the intention of introducing into the life of French schoolboys more of the freedom and physical exercise which are enjoyed in so many of our English schools.* In his evidence before the Parliamentary Commission, M. Lavisse dwelt upon the perils of the French system under which the very close restraints of school are suddenly followed by the almost unchartered freedom of college life. He urged that the French schoolboy would be all the better for more of the freedom which the English schoolboy enjoys.† M. Gréard spoke appreciatively of many features in the life of our English boarding-schools, though he evidently regards something quite different as more in keeping with the practical needs of France.‡ And M. Max Leclerc laid his finger on one of the strongest marks of difference between the best English schools and the corresponding schools in France—namely, the fact that the form-masters in French schools have far less to do with the boys out of school hours than is the case in English secondary boarding-schools.‖ The same point is emphasised by M. Duhamel. The masters, he says, must live much more with the boys, if they wish to influence their characters.¶ But this difference between the French and English systems cuts very deep. We think primarily of education as forming character. They think of it as forming the mind. There is a long history behind each of the two views. A nation cannot easily or quickly step from one to the other. The masters have been chosen chiefly for the one purpose or for the other. A man who is excellent for the one is by no means always so excellent for the other. Partly, again, it is a question of time and energy. Few active English schoolmasters who live among their boys can find time or strength during term-time to carry forward extensive private studies on their own account. A French correspondent, writing to M. Duhamel, makes the significant remark that, "The best schoolmasters are not necessarily those who have the highest intellectual attainments. The latter are apt to write articles instead of thinking about their pupils."§ In English secondary education there is nothing which corresponds to the frequency with which the French secondary schoolmasters are promoted, in view of their learned publications, to university

* Les Écoles des Roches et de l'Estérel and le Collège de Normandie.

† *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. pp. 38-93.

‡ *Ibid.* p. 11.

‖ *Ibid.* Vol. II. p. 86. On the other hand, French schoolboys are watched in play-time more closely than English boys—but by another grade of teachers, and this makes all the difference.

¶ *Comment élever nos fils*, pp. 57-58.

§ *Ibid.* p. 254.

chairs. But all who know our English public-schools are well aware that it is not any lack of literary power that has prevented numbers of the masters from attaining similar distinction.

There persists in French education, in spite of the influence of Rousseau, a certain distrust of child-nature. This explains some of the most characteristic features in the discipline of the French schools. Among one school of educational theorists in America there is a tendency to go to the other extreme and to idealise child-nature. Most systems of education tend to range themselves nearer to one side or to the other in this great controversy. One school of educational writers is apt to believe that, in the training of all children, the promptings of a child's natural disposition will be our best guide, and "joy its own security." The other school would agree with the words of Frederick the Great to Sulzer, when the latter was extolling the advances made by education since teachers had gone on the principle that man by nature is good and not evil. "My dear Sulzer," said the King, "you don't know what a cursed race this is that we belong to!" The English practice is characteristically based on a combination of both views. We believe that nearly all children need discipline and oversight, but that they respond to confidence and deteriorate under suspicion. Dr. Arnold constantly spoke, with horror, of the sin which he saw among the boys; but he nevertheless invariably trusted to a boy's honour and truthfulness, until the latter had shown himself undeserving of such confidence.

One fundamental difficulty in French education is a social difficulty. Too large a proportion of parents are anxious to send their boys to secondary schools in order that they may win positions of assured competence and respectability and become "functionaries." "We have too many functionaries," writes M. Duhamel. M. Bourgeois states that in France "vanity has always had a great influence on the choice of education made by parents for their children."* M. Brunetière, in his evidence before the Parliamentary Commission, laid emphasis on the fact that middle-class parents in France are specially anxious to secure for their children the social advantages of higher secondary education.† There is a very laudable side to this anxiety. But the result is that a great many boys receive an education which is not fitted to their abilities or to their prospects in life. It is hoped, however, that, if a very practical kind of secondary education is offered as an alternative to the classical, parents will be more inclined to send their boys to the modern schools, and thus equip them for various kinds of commercial and industrial activity rather than for the literary and official

* *L'Enseignement secondaire selon le vœu de la France*, p. 104.
† *Enquête sur l'Enseignement secondaire.* Procès verbaux. Vol. I. p. 186.

callings, which are already overstocked.* But the older classical education enjoys, and rightly enjoys, high social prestige. Will the practical utility of the proposed schools counteract the tendency to prefer the older course? There is an evident desire to see what can be done to meet the present difficulty by providing a new and attractive type of school, and by relaxing the ties of official routine in educational organisation. M. Paul Cambon, French Ambassador in London, made an admirable speech at a crowded meeting held in Paris last May on behalf of the new Collège de Normandie. He insisted on the necessity for new experiments in French secondary education. The existing system, he argued, is admirable from the point of view of literary, philosophical, and scientific culture. It forms the mind, but does not do enough to form the character. English secondary education, on the other hand, formed the character but did not do enough to form the mind.† The same plea for more freedom in educational development is advanced by M. Ribot on behalf of the Parliamentary Commission, of which he is the chairman. "The general desire to which our inquiry gives expression is for less uniformity, for less bureaucracy, for a little liberty."‡ Still more striking are the words in which M. Émile Bourgeois sums up his suggestions for the reform of French secondary education—words which might well be applied to England. We need, he says, "Plenty of variety and plenty of liberty, but both rooted in a strong sense of unity."¶

ii. In America.‖

During the last few years the signs of American influence in European education have been very great. I do not mean that European Governments have deliberately set themselves to imitate American curricula or American forms of educational administration. On the contrary, the new influences have, in some quarters, been very unwelcome. But they have been none the less potent for change. Just as in commercial and industrial affairs, so in educational, America is being brought into constantly closer relations with Europe. In nearly every department of European life—ecclesiastical, political, and social, not less than economic—American influences are affecting the older ways of looking at things. And the force of the new current is specially noticeable in education.

The influence of America shows itself most conspicuously at present in the growing demand for a better school training in view of the needs of modern industry and commerce. This is not the deepest influence which American example is exerting on European

* For details of the plans for the reform of French secondary education, see Appendix VII. below.

† *Le Temps*, May 27th, 1901.

‡ *La Réforme de l'Enseignement secondaire.* (Paris: A. Colin.)

¶ *L'Enseignement secondaire selon le vœu de la France*, p. 140. See also Appendix V. (below). Limitations on freedom in teaching contemporary French History in French public secondary schools.

‖ Vol. X. of Special Reports on Educational Subjects is devoted to the subject of Education in the United States of America.

ideas of education, but, for the present, it is the most conspicuous. Some years ago Prince Bismarck said that "in estimating future events we must keep an eye on the United States of America, for they may develop into a danger to Europe in economic affairs, possibly also in others, at present wholly unsuspected by most of us. . . . The war of the future is the economic war, the struggle for existence on a grand scale. May my successors always bear this in mind, and take care that, when the struggle comes, we are prepared for it."* There are many signs of the growth of this feeling on the Continent, and in all directions we can see steps being taken to strengthen the technical and professional sides of education in order to produce more skilful workmen for the industrial and commercial struggle. In nearly every part of German-speaking Europe the literary studies in the continuation schools are gradually losing ground to the gain of the technical. The philanthropic idea of the evening school or continuation class, which has done so much in English education and which in Scandinavia has produced the "People's High Schools," seems, for a time at least, to be fading away in Germany and to be giving place to an industrial and commercial aim. In fact the continuation school is being regarded more and more as a drill ground for the lower ranks of the industrial and commercial army. The change in this direction is naturally rapid because, when once the aim is clear and public opinion is found not to resist the change, Governments can quickly reorganise continuation schools in such a way as to make the teaching directly useful to the pupils and indirectly profitable to their employers. Much more difficult and much slower would be the converse process of substituting a more humane and ethical aim for the predominantly industrial and commercial one while at the same time increasing the economic efficiency of the pupil. Such a training as that given in the People's High Schools of Denmark and Norway is much more complex in its character than what is given in the more strictly technical continuation schools. It is more dependent on spiritual forces outside as well as inside the school. It is more closely connected with the personality of the teachers than with their technical proficiency in imparting dexterities of hand or brain. Its best results are more difficult to analyse. It cannot so easily be tested by examinations. It is more liable to be disfigured by gush and sentiment. But nevertheless, at its best, it meets a far deeper, and probably a much more permanent, need than do the purely technical classes, though the latter are also necessary. At present, however, the conflict of moral aims is so acute that it is more difficult than ever to maintain a strong and well-defined ethical purpose in continuation schools. Where the tradition already exists it can be maintained, but it is very hard, under present conditions of thought, to establish a new tradition. Confusion and hesitation seem, for the time, to have

* *Conversations with Prince Bismarck.* Von Poschinger. Ed. S. Whitman (Harper, 1900,) p. 229.

ON THE MEASUREMENT OF MENTAL FATIGUE IN GERMANY.

Part I.

The study of mental fatigue in schools has within recent years attracted considerable attention in both educational and medical circles. It is beginning to be recognised that a more exact knowledge than we now possess of the connection between work and fatigue, and of the predisposing causes and physiological effects of the latter is an indispensable requisite for ensuring that schemes of education shall be carried out under correct hygienic conditions. To what may be termed the external factors of school hygiene—buildings, sanitation, ventilation, lighting and heating—much attention has been directed and vast improvements carried out, based on well-understood hygienic laws; but the question of psycho-hygiene, the physiology of the influence of study on individuals and its bearing on school organisation in its effect in maintaining the health and well-being of children, is one which until the previous decade had scarcely been mooted at all, and which still offers a wide and interesting field of enquiry for investigation.

The latest comparative post-mortem examinations have been successful in fixing the order of development of the brain in children and in showing that those parts of the brain which serve the purpose of systematic thought, commonly known as the reasoning powers, are the last to mature; but at what age these portions of the brain have arrived at a stage of development sufficient to meet the demands of the first school work and in what relation their development stands to the advancing claims of the latter, physiology cannot determine.

The systematic study of mental fatigue, however, as lately undertaken by various investigators, particularly in Germany, and the careful comparison of the results obtained by various methods have served to throw a flood of light on this subject.

Chance speculation has given way to a spirit of earnest enquiry, which has led to investigations conducted in a scientific manner.

It is perhaps a matter for surprise that another problem which has occupied the attention of the scientific world for the last four decades, the principle of the conservation of energy, due to Mayer and Helmholtz, has not stimulated scientific enquiry in the field of mental fatigue.

It is, however, not to be wondered at that physiologists have shown considerable hesitation in approaching this subject, when one reflects what an enormous expenditure of time and trouble is involved in obtaining any clue, however slight, to the intricate and fluctuating operations of the mind.

Mental fatigue is so much more insidious than physical fatigue, its growth and presence are so much more difficult to trace, while the line of demarcation between the healthy fatigue induced in the course of a day's work and that chronic state which is a sign of over-pressure, is often so undefined and variable that advance in our knowledge of this subject must of necessity be slow.

The pain accompanying physical exhaustion is an imperative signal to cease work, but in the case of mental work, flagging energy is generally only recognised in the results, as the quality of the work degenerates and the rate of production diminishes.

The loss of nervous energy may be, and very probably is actually considerably greater in the latter case, but nature's warning signal, pain, is often absent, although to the discerning eye a state of chronic overwork is marked significantly enough by general lassitude, failure of appetite, unhealthy complexion, nervous twitchings, and other signs of a disturbed state of health.

Much careful enquiry has, however, of late years been devoted to this branch of school hygiene, and this is probably due largely to the cry lately become so prevalent in Germany of Ueberbürdung —Over-pressure—in the public schools of the country, and particularly in the Gymnasien or classical schools.

Competitive examinations and the necessity of producing results tempt teachers to make demands on their pupils greater than is always compatible with a healthy physical and mental state while the danger arising from too severe a strain is all the greater because the results are not immediately apparent, and the mischief, when caused, is of a more or less insidious nature frequently, however, causing indelible and permanent injury in after life. The school of to-day has, in fact, the reputation of injuring its pupils mentally and physically by over-pressure, and of stamping them with the marks of overstrain and haste, while ignoring some of the elementary laws of hygiene.

To obtain, however, a just appreciation of the most favourable hygienic conditions, a grasp of the principles underlying the phenomenon of mental fatigue is indispensable. On it should depend largely the organisation of school work, the number, length, and order of the daily lessons, the frequency and duration of the intervals for recreation.

Not that any hope can be entertained of reducing the operations of the mind to the level of an exact science or of grounding complicated psycho-physical phenomena on any numerical basis; the inter-relations indeed between psychical and physical processes are of so close a character that a strict border-line cannot be drawn; yet the progress already made in the study of mental fatigue and the insight gained into the connection between work and fatigue has been sufficient to further very considerably our general knowledge of the hygiene of education and to give promise of greater results in the future.

One of the first attempts to draw some definite conclusions as to the prevalence of over-pressure in schools and the most usual symptoms of mental fatigue was made by Galton.*

As chairman of a meeting for discussing the question of over-pressure in schools, Galton had the opportunity of noting the incompatibility of the various views put forward.

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* *Francis Galton*, "Remarks on Replies by Teachers to Questions respecting Mental Fatigue." Journal of the Anthropological Institute, November, 1888. London.

gained ground nearly everywhere. Consequently the way is, at present, open for the rapid advance of any idea which is clearly defined, evidently practical, and capable of general application. These are the characteristics of the demand for efficient technical classes for young workpeople; and the result is that the movement in favour of establishing such classes is spreading all over Europe and threatening for the time to supersede the more ethical aim in popular education. The movement is naturally welcomed and aided by those who are specially interested in industrial and commercial progress. For the present, it is clearly doing a great work, and superseding much which, because of its inefficiency, deserved to be superseded. But the weakness of the new movement is on its ethical and human side. It fails to meet some of those deeper needs which, in the long run, assert themselves irresistibly, and claim the chief place in the plans of all who have to organise national education. The present tendency towards technical instruction at any price is probably only the first phase of a great educational movement. It is likely to be followed in due time by a strong reaction in favour of a kind of education which takes more fully into account the moral and spiritual needs of men and women, and which, without sacrificing industrial efficiency to sentiment, does not regard the means

> "Of blessed consolations in distress,
> Of moral strength and intellectual power,
> Of joy in widest commonalty spread,"

as being of small account compared with the claims of commercial profit and industrial success.

Europe is filled with apprehension at the rapid economic development of America. Consequently great efforts are being made in self-defence to increase the industrial efficiency of Europe. Thus, for the time, American influence is turning a great part of European education in a technical and utilitarian direction. Many of the more recent changes in European education are inspired by the ideas to which Lord Rosebery gave eloquent expression in a passage in his Rectorial address at Glasgow in November, 1900.

> "Remember the conditions: nations all becoming more dense and numerous, and therefore more hungry and more difficult to satisfy; nations more and more educated and intelligent, more observant of each other; nations more and more alive to their substantial interests, and capable of pursuing them; nations, therefore, increasingly aware of the vital necessity of a healthy, growing commerce, and fiercely determined to obtain it; nations more and more civilised, and therefore less and less anxious for the wager of battle, but still ready even for that, if it be necessary for their new objects. After all, when you have reduced all this to its last expression, it comes to this—the keener and more developed intelligence of humanity, stimulated by competition and enhanced by training. It is with that competition that we have to struggle and to vie."*

American education, however, derives its greatest strength, not from its technical aim, but from the fact that it is animated

* *Questions of Empire* (London: A. L. Humphreys, 1900), p. 32.

by an intense, and indeed religious, belief in the rightness of giving to every boy and girl in the community, as far as possible, an equal chance of making the most of his or her natural powers. This is the real secret of the immense force of American education. Territorial opportunities and other economic advantages may explain much of American prosperity in industry and commerce. But a very different use would have been made of those opportunities had it not been for the great work of the American schools. And the moral power which animates the American schools is the determination "to give every boy and girl their chance." The claims of each individual human being to the best available education are regarded as undeniable, and are in fact the moral basis of American education. But these claims are not satisfied by a merely technical training. Some of the highest kinds of technical training might be compatible with a degree of political subjection which would be intolerable to the American mind. "Each individual child," says Dr. Nicholas Murray Butler, "is entitled to his five-fold inheritance—scientific, literary, æsthetic, institutional, religious." No part of this inheritance can be denied to him without endangering the future welfare of the community. And every part of the inheritance must, in some measure, be given to him through the schools. Hence it may perhaps be hoped that American influence on European education, though for the time predominantly technical in its results, will ultimately reinforce the labours of those who, under much temporary discouragement, believe that the ethical and human elements are by far the most important in any system of education worthy of the name. Thus, American education has a double significance for Europe. It necessitates better technical training for the masses, but at the same time it compels attention to the fact that such technical training must only be a part of the education which every individual is to be given abundant opportunities of enjoying.

The striking things in American education are not its curricula, but its point of view and attitude of mind. Its aim is to develop individuality through the discipline of common schools. It derives its extraordinary influence from the fervent faith which inspires it. Most Englishmen have little idea how intense is the belief of Americans in the necessity for the best possible schools for the whole community. The strenuous zeal which American citizens show on behalf of public education is wholly admirable, and both a sign and a source of national strength. We have nothing like it in this country, where we are still divided at heart between the distrust of popular education and a convinced belief in its necessity. England has been the common home of the two ideals which developed respectively into the very different systems of public education in Virginia and in New England. New England believed in common-schools for everybody, and made sacrifices for them. Virginia believed in giving an appropriate education to gentlemen, but doubted the benefit of much book-learning for the mass of a rural population. This

view (for which, no doubt, there is something to be said,) was brutally stated by Berkeley, the Governor of Virginia, shortly after the Restoration. In answer to the inquiry from the Commissioners of Foreign Plantations, "What course is taken about the instructing the people within your government in the Christian religion?" he said, in 1671, "The same course that is taken in England out of towns; every man according to his ability instructing his children. But I thank God there are no free schools nor printing, and I hope we shall not have them these hundred years; for learning has brought disobedience and heresy and sects into the world, and printing has divulged them and libels against the best Government; God keep us from both."* On the other hand, in 1647 (eleven years after the decision to found what subsequently became Harvard College), the General Court of the Company of Massachusetts Bay passed the resolution which laid the foundation of all later school laws in New England. "It being one chief point of that old deluder, Satan, to keep men from the knowledge of the Scriptures, as in former times, by keeping them in an unknown tongue, so in these later times by persuading them from the use of tongues that so at last the true sense and meaning of the original might be clouded by false glosses of saint-seeming deceivers, that learning might not be buried in the grave of our fathers in church and commonwealth, the Lord assisting our endeavours,—It is therefore ordered that every township in this jurisdiction after the Lord hath increased them to the number of fifty householders, shall then forthwith appoint one within their town to teach all such children as shall resort to him to write and read, whose wages shall be paid either by the parents or masters of such children, or of the inhabitants in general, by way of supply, as the major part of those that order the prudentials of the town shall appoint; providing those that send their children be not oppressed by paying much more than they can have them taught for in other towns; and it is forthwith ordered that where any town shall increase to the number of 100 families or householders, they shall set up a grammar school, the master thereof being able to instruct youth so far as they may be fitted for the university, provided, that if any town neglect the performance hereof above

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* Dr. Elsie Clews, *Educational Legislation and Administration of the Colonial Governments.* 1899. (Columbia University. Contributions to Philosophy, Psychology, and Education, p. 359). This report of Berkeley must, however, not be taken as typical of *average* opinion in Virginia. When Berkeley was writing, there were already three free schools in Virginia. Ten years earlier an Act had been passed for the establishment of a college, involving a free school. Voluntary education, given in "field-schools," grew up among the Virginians at an early date. But Berkeley's sentiments were an outspoken expression of views which lurked in some Virginian minds, and which checked educational development on any systematic plan. As he himself, earlier in life, had helped forward educational work, I suspect that the report quoted in the text was a grim and rather brutal joke, blurted out by an old man who was hardening into a stubborn antagonism to liberal ideas.

one year, that every such town shall pay £5 to the next school till they shall perform this order."*

The contrast was complete in nearly all respects. In New England the Puritans formed small town-communities and the schools were an essential part of their religious establishment. Their grammar schools and college existed to train up ministers and "teaching elders." In Virginia, on the other hand (to quote from a recent writer), "the abundant wild land, the cheap bond-servant labour, and the yet cheaper slave labour which became common in the last quarter of the seventeenth century, tempted the young provincial of the Chesapeake Colonies to land ownership and that culture of the soil by the hands of others that had been for ages the pursuit of the gentry in the mother country. . . . The schools in Virginia were the offspring of the law of demand and supply. . . . There was no town life, and there was small need of dispensing gratuitous Latin to thriving tobacco planters in a new country, whose clergy, such as they were, were imported ready-made. . . . The development of large land-holdings began to produce a class of pretty rich planters in the last half of the seventeenth century, who naturally wished to give their sons better advantages than they could get in the rough old field-schools or the struggling free-schools. Imitating the landed proprietors of England, these men brought up their sons under private tutors."†

Thus New England and Virginia represent respectively some of the tendencies which we in England can still recognise in many of our towns as contrasted with many of our country districts. Times have changed, the problems have altered, and our population has become much more intermixed than it was 300 years ago. But we can still discern the same differences in regard to sympathies with different types of Church order; in regard to the stress laid on the importance of education for the middle and lower classes; and in regard to natural leanings towards commercial pursuits or towards the interests of country life. The one finds its unit in the commune or municipality; the other in the county. The one is mainly commercial, the other mainly agricultural in its sympathies. The one regards the public provision of primary and secondary schools as a necessary part of municipal organisation; the other is comparatively casual about schooling, laying more stress on the education which comes through labour, through social intercourse and through the practised observation of nature. The one lays stress on all children going to the same schools; the other as naturally inclines to private instruction for the children of the landowning classes. The one produces a high level of intelligence among the middle-class; the

* Dr. Elsie Clews, *Educational Legislation and Administration of the Colonial Governments*, (Columbia University. Contributions to Philosophy, Psychology, and Education) (New York: Macmillan, 1899), pp. 60–62.

† Edward Eggleston, *Transit of Civilisation from England to America in the Seventeenth Century* (New York: Appleton, 1901), pp. 222–26.

other tends to sacrifice the middle-class and to develop a remarkable degree of culture and of statesmanlike ability among those few of the highest class who are naturally interested in such matters. In America the two ideals had room to develop for nearly two centuries. The result was that each developed its characteristic excellences and defects, but that, in the end, the Puritan ideal stamped itself far more deeply on the national system of education than did its more picturesque but less strenuous rival. In England, the two ideals have had to grow up together; like two plants in one pot; neither having freedom to expand into a national system; yet each gaining much from the other, though never wholly coalescing with its opposite. Hence the result that we have no clear and single aim in our educational institutions. Educationally, England is a sort of half-way house between Prussia and the United States—neither frankly democratic nor willing to submit to organisation from above. *At its worst*, English education timidly trims between two opposing extremes and, after spasmodic and half-hearted efforts at reform, sinks back into a lethargy of ineffective compromise; or it crouches down between the burdens of two incompatible ideals. But *at its best* (which is rarely reached) it comes nearer to the truth than does any system in the world, because it is sensitive to the excellence both of discipline and of freedom, and because, when it discards mere half-hearted compromise, it boldly attempts to combine the two ideals, to reconcile contraries, and to hold together opposing but complementary tendencies in one system. "One advantage is as little as possible sacrificed to another. We compensate, we reconcile, we balance. We are enabled to unite, in one consistent whole, the various anomalies and contending principles that are found in the minds and affairs of men. From hence arises not an excellence in simplicity, but one far superior, an excellence in composition."*

But, however good from some points of view is the English hatred of extremes, there is no doubt that it has greatly hampered us at all periods when swift and searching reform has been rendered necessary through the rise of new social conditions or through the pressure of foreign rivalry. The Americans and the Prussians have each had an easier task. They have each taken one of two clearly marked alternative policies, and have succeeded in effectively pressing it home. Each has sacrificed a good deal that we have kept. But, on the other hand, each has succeeded in establishing a well-defined educational policy, while we have long faltered between two conflicting aims. The result is that both Prussia and America possess a system of schools which stands out prominently and unmistakably among all other public institutions. A Prussian or an American is as proud of his school system as we are of our Navy. Few Englishmen, on the other hand, could give an accurate account of the kinds of school which provide the

* Burke, *Reflections on the Revolution in France*. 1790.

multifarious types of English education. And it must be admitted that large numbers of Englishmen have but a faint interest in public education and but a faint belief in the value of the work of elementary schools. On the other hand, a well-informed American writer has recently observed that "education is the one thing in which the American people believe without reserve, and to which they are without reserve committed. Indeed I sometimes think that the necessity of education is the only settled article in the shifting and confused social and moral creed of America."*

The spirit which animates American education at the present time is well shown in the "Declaration of Principles" adopted by the National Educational Association of the United States at its meeting held at Charleston, S.C., in July, 1900. This document, from which extracts are given below, was signed by Professor Nicholas Murray Butler of New York, President Harper of Chicago, President Thwing of Western Reserve University, Cleveland, Ohio, and other distinguished leaders of American education.

"The common school is the highest hope of the nation. In developing character, in training intelligence, in diffusing information, its influence is incalculable. In last resort the common school rests not upon statutory support, but upon the convictions and affections of the American people. It seeks not to cast the youth of the country in a common mould, but rather to afford free play for individuality and for local needs and aims, while keeping steadily in view the common purpose of all education. In this respect it conforms to our political ideals and to our political organisation, which bind together self-governing states in a nation, wherein each locality must bear the responsibility for those things which most concern its welfare and its comfort. A safe motto for the school as for the state is: '*In essentials*, UNITY; *in non-essentials*, LIBERTY; *in all things*, CHARITY.'

"A democracy provides for the education of all its children. To regard the common schools as schools for the unfortunate and the less well-to-do, and to treat them as such, is to strike a fatal blow at their efficiency and at democratic institutions; it is to build up class distinctions which have no proper place on American soil. The purpose of the American common school is to attract and to instruct the rich, as well as to provide for and to educate the poor. Within its walls American citizens are made, and no person can safely be excluded from its benefits.

. . . . . .

"We note with satisfaction the rapid extension of provision for adequate secondary and higher education, as well as for technical, industrial, and commercial training. National prosperity and our economic welfare in the years to come will depend in no small measure upon the trained skill of our people, as well as upon their inventiveness, their persistence, and their general information.

"Every safeguard thrown about the profession of teaching, and every provision for its proper compensation, has our cordial approval. Proper standards—both general and professional—for entrance upon the work of instruction, security of tenure, decent salaries, and a systematic pension system, are indispensable if the schools are to attract and to hold the service of the best men and women of the United States; and the nation can afford to place its children in the care of none but the best.

"We welcome the tendency on the part of colleges and scientific schools to co-operate in formulating and administering the requirements for admis-

* Prof. John Dewey, of Chicago, in the *Educational Review* (U.S.A.), June, 1901, p. 29.

sion to their several courses of instruction, and we rejoice that this association has consistently thrown its influence in favour of this policy, and has indicated how, in our judgment, it may be best be entered upon. We see in this movement a most important step towards lightening the burdens which now rest upon so many secondary schools, and are confident that only good results will follow its success.

"The efficiency of a school system is to be judged by the character and the intellectual power of its pupils, and not by their ability to meet a series of technical tests. The place of the formal examination in education is distinctly subordinate to that of teaching, and its use as the sole test of teaching is unjustifiable.

"We renew our pledge to carry on the work of education entrusted to us in a spirit which shall be not only non-sectarian and non-political, but which shall accord with the highest ideals of our national life and character. With the continued and effective support of public opinion and of the Press for the work of the schools, higher and lower alike, we shall enter upon the new century with the high hope born of successful experience and of perfect confidence in American politics and institutions."

At the meeting of the Harvard Teachers' Association, held in March, 1901, a number of interesting papers were read and discussed on the general topic "The People and the Schools," with special reference to the present attitude of public opinion towards the education given in the schools and colleges of the United States.* The first paper, read by Miss Shute, began as follows:—

"In reply to the question, 'Are the schools doing what the people want them to do?' it would be perfectly justifiable to say, 'No, and, what is more, they never have done and never will do what the people want." And it would be equally justifiable to say, 'Yes, for public opinion determines what the schools shall be; the schools are a mere reflection of public opinion.' Neither of these answers, however, satisfies the candid questioner. He is aware of an atmosphere of discontent, a murmur of disapproval—more or less subdued—and if he is a practical person and not a mere observer of men and things, he takes no lasting satisfaction in contemplating the inconsistencies of the people; but desires to know who feels this discontent, what the nature of it is, what causes it, and how it is to be allayed.

. . . . . .

"Expressions of discontent with the schools and what they are doing are confined to no one class of people. From the wealthy taxpayer who helps support the public schools, although his children do not attend them, to the man whose children enjoy the blessings of public education, although he contributes practically nothing to its support; from the honest and fair-minded reformer to the fashionable dabbler in social problems; from the director of large enterprises to the employer of the errand-boy; from the experienced and able superintendent to the merest beginner on the teaching force, comes the voice of complaint and adverse criticism. I would not, however, give the impression that the general attitude toward the schools is hostile; I believe that were the adverse and favourable criticism weighed against each other, gratitude for what the schools achieve would preponderate over the discontent caused by what they fail to do."

Miss Shute's experience is that "the severest criticism comes from two classes of people—those who know the schools least, the superficial meddlers in public matters; and those who know them best, teachers, school officials, and honest students of education. The

* The papers are given in full in the "Educational Review" (New York), May, 1901 (London: J. M. Dent), and I have taken the following extracts from that source.

great general public takes a more lenient attitude. . . . The assertions of those who know the schools best, severe as they often are, are likely to be specific and discriminating, and are often coupled with equally warm praise."

She proceeds to mention three typical complaints. The first is that "the schools are not so thorough as they were." This is often said by people who measure educational progress by the children's skill in reeling off lists of dates, geographical facts, grammar rules, etc. In so far as this is the basis for the criticism the latter may be safely disregarded. Gymnastics of the memory are not education. But, secondly, Miss Shute continues, "I am forced to believe that many people do see a deterioration in the great mass of school children so far as independent power is concerned." Thirdly, she refers to the charge that the schools do not sufficiently prepare the children for life. The two first criticisms, in so far as they have any solid justification, hinge on two important points; (1) that on the average the homes do less than they did a generation or two ago to foster the spirit of obedience, self-denial, and self-control; (2) that there has been, in our educational ideas and practice, a reaction from excessive formalism and severity, and in some cases a tendency to sacrifice mental discipline to variety of intellectual interest. In other words, the chief cause of the weakening of those influences which invigorate character lies outside the school, and is part of that larger movement of thought and change (ethical as well as intellectual) which marks a revolt against the too rigid discipline of former times.

"Many causes," writes Miss Shute, "conspire to produce the impression of deterioration: the fact that the schools draw an increasing number of pupils from homes of a different type, homes of extreme illiteracy, of no traditions worth the name, and of low moral ideals; the conditions of crowded city life as compared with the freer and more responsible life of the country or provincial town; the greater leniency in all home discipline, and the excessive indulgence of children in many homes—all these elements should be taken into account in considering the question of deterioration. . . . Indeed, if it is true that the home does less to encourage this spirit than it did a generation or two ago, the greater becomes the responsibility of the school in this regard; but surely this does not mean culpability on the part of the school. It means that the school has reflected the spirit of the age, not dictated it, and that it must work unremittingly to counteract it. A close student of the times who is familiar with both the homes and the schools is inclined to marvel that the schools have not succumbed more completely to the spirit of indulgence towards children which has marked the home training of people of my own generation and of the generation succeeding my own. I believe that with many a child the school, with its orderly discipline and definite demands, is the saving influence. The mother of a child of six helplessly remarked to a friend of mine, 'I wish that Tommy would go to bed earlier,' but I have seen that same Tommy buckle down to his task in school and learn thereby something of the joy of achievement and of the dignity of obedience to law. We could multiply instances of this sort indefinitely."

Miss Shute goes on to observe:—

"If I am right in thinking that the people, more or less consciously,

want the schools to develop in the pupils a robust type of character, and that the people are not satisfied with what the schools are doing in this respect, I can only say that the schools are no better satisfied with what the people are doing, and that not until parents, teachers, employers, and critics of the schools develop a more consistent notion of what a child's responsibility should be, or a more intelligent notion as to the motives that have caused human beings in all ages to struggle and to succeed, can the schools satisfy either the people or themselves."

But, in a measure, a change of point of view within the school has affected the character of some of the pupils. Miss Shute writes :—

"The main causes of this regrettable condition—so far as it exists—lie, I believe, outside of the schools; nevertheless, it would be uncandid to deny that, in the reaction against formalism and arbitrary control, the school has too often made the mistake of substituting entertainment for that compelling interest that secures the most effective kind of work."

In regard to the third criticism—that the schools do not sufficiently prepare the children for life, Miss Shute writes as follows :—

"The charge—that the schools do not prepare for life—plainly originates in a definite ideal, an ideal in this case which is either broadly educational, or strictly practical, or frankly mercenary, according to the individual conception of what life is. I think that, with one exception, this charge is coupled less often than the other with the assertion that the schools have deteriorated. That one exception is in the matter of certain exact phases of preparation, notably arithmetic and spelling. We are all familiar with the statement that the present generation is totally unable to spell. It is true that there is a great deal of bad spelling, and I am convinced that spelling might be begun earlier and that it should receive more attention, although I would not for one moment have our schools return to the laborious old-fashioned method of teaching children to read by means of spelling. I think that we sometimes forget that inaccurate spelling is not a distinctly modern iniquity; it is a matter of record that the school board of Boston gave a written examination some sixty years ago that led them to comment with severity upon the spelling of the pupils in the public schools. We forget, too, that many of the children who now enter our high schools are from illiterate homes, and have never been in the habit of seeing and using books outside of schools, so that the wonder is that they spell as well as they do.

"In the main, however, this charge makes no comparison between the schools of the past and present. It merely deplores the fact that the schools are not preparing children for life. The philosopher, who regards with profound pity the great majority of mankind losing much that makes life precious because their early training did not open their eyes to the beauty of the world; the business man, who complains that the young people whom he employs are inaccurate and heedless and unintelligent; and the disappointed parent, whose grievance is that his child is not equipped by the school with a definite means of support, are all making the same criticism, for they are all saying that, when the duties and privileges of the actual world present themselves, the graduates of the schools are weighed in the balance and found wanting.

"The men who have helped us in recent years to see more clearly what education is—among them Dr. Harris, Dr. Butler, Mr. Hanus, and Dr. Dewey—have kept constantly before us the true ideal of the school, and consequently the only reliable foundation for the organisation of studies, and the one sound basis of criticism—that is, the correlation of the school with life. I do not mean to imply that this is a distinctly new ideal, but

I do mean to say that it has been stated with more clearness, with more frequency, with a more generous conception of what life is, and with a more conscious recognition of its use as a working basis, in recent times than in the past. . . . Whether we accept a broad view or a narrow we must all admit that the schools leave much to be desired when judged from the standpoint of their correlation with life. The dull inert faces of hosts of men and women whom we jostle on the street, and the shrewd calculating faces of as many more, proclaim this fact as truly to the idealist as the incompetency of the employed, and the helplessness of the unemployed prove it to the more practical observer.

"The causes are not far to find. This varying conception of what life is naturally produces confusion in the schools themselves as to what is worth while and what is not."

After perusing such a paper as the one from which I have made these extracts the non-American reader draws three chief conclusions. (1) The first conclusion is that this power of candid self-criticism, coupled as it is with deep insight into the complex nature of educational problems and with the old hearty and vigorous belief in the efficacy of school training in the building up of a great nation, shows that at no earlier period has there been so powerful and enlightened a movement for educational progress as is stirring the United States at the present time. No student can read the writings of the present leaders of American education without feeling deeply impressed by the spirit which animates educational inquiry and educational reform in America to-day. If the movement were more self-laudatory, it would produce far less effect on the mind of the distant student. The most impressive characteristic of the new movement is that it combines frank and searching self-criticism with deep and unflinching faith in the power of education to mould the future of a great people and in its being able, while inspiring all with a sense of national unity and collective responsibility, to preserve and strengthen what is best in individual character. (2) The second conclusion which impresses itself on the mind of the student is that most of the criticisms which have been touched upon above, proceed from those who have a very high ideal of what a school might do and should be enabled to do. The criticisms imply immense confidence in the possibilities of school work. They do not show reaction or disappointment, but a resolution to press forward and to get more out of the schools than heretofore. "Your committee believe that . . . we must learn first to spend wisely the money raised in our cities for public school purposes, *and that then we must almost double the amount.*" Those are the words of a committee of the American Society for the Promotion of Engineering Education which reported in July, 1900. And yet, says Professor Murray Butler, "the annual expenditure of the United States for common schools is quite equal to the sum total of the expenditures of Great Britain, France, and Germany combined on their powerful navies. . . . It is a sum greater by many millions than the net ordinary expenditure of the United States Government in 1880. The expenditure for common schools has nearly trebled since 1870, and during that period has grown from $1.75 to $2.67 per capita

of population, and from $15.20 to $18.86 for each pupil enrolled."* We in England have, as a rule, but a faint conception of the labour, interest, confidence, and money-aid which Americans lavish, and intend to lavish, on their public schools. (3) The third conclusion to which the reader is led is that the causes of unrest in American education are ethical and social, not merely administrative, pedagogical or economic. American conditions vary greatly from British conditions and still more from the conditions which prevail on the Continent of Europe. But there, as here and elsewhere, the educational problem is at bottom a social and ethical problem. Hence its extraordinary interest, and its extreme difficulty. Mere bustle of organisation is not in itself a sign of progress or of educational efficiency. There are many Americans who, with good reason, regret the gradual disappearance, both in library and in educational administration, of the older form of leisured and tranquil scholarship. But the leaders of American education have not sacrificed their private leisure for any lower reason than the imperative call of public duty. What is going forward in America is a fierce struggle between two contending forces and ideals of life. The victory of the nobler influences depends in great measure on what is made of American education during the next twenty years. Among the best antidotes to materialism and selfishness in a commercial community are idealism and self-sacrifice in the schools. A business-like idealism is the characteristic feature of American education at its best. This combination of two great qualities will protect the schools from the dangers of vulgar utilitarianism on the one hand, and from undue excitement, superficiality, and self-advertisement on the other.

The cross-currents of educational tendency are wont to meet in the secondary school. It is the secondary school rather than the elementary school which is the focus of the difficulties now most pressing in national education. This is true of America as of England, Germany, and France. The Dean of Teachers College in Columbia University, New York, has recently written: "In the field of education there are no problems more difficult to solve than those pertaining to the work of the secondary school. What is the aim of secondary education? What is its function in modern society? What knowledge is of most worth? Such questions as these come to every secondary teacher, and demand an answer." †

But secondary education in America has had a long history, and the present difficulties need to be reviewed in the light of the

* Address on the *Status of Education at the Close of the Century*, delivered at the Chicago meeting of the Department of Superintendence of the National Educational Association of the United States, February, 1900. (Report of Proceedings, p. 195.)

† Dr. Russell. Editor's Preface to Bennett and Bristol's *The Teaching of Latin and Greek in the Secondary School.* (Longmans, 1901), page x.

past. Professor Ellsworth Brown, of the University of California, in the account of secondary education in America which he contributed to Professor Murray Butler's Monographs on Education in the United States,* shows that American secondary education has passed through three stages of development:—first, "the colonial period with its Latin Grammar schools; secondly, the period extending from the revolutionary war to the middle of the nineteenth century, during which the attempt was made to solve the problem of American secondary education by means of the so-called academy; and thirdly, the succeeding period down to the present time chiefly characterised by the upgrowth of public high-schools." In the earlier days "the grammar schools and colleges were intended especially for the directive and professional classes. They had little, if any, connection with such elementary schools as there were. There seems to have been no middle grade of school answering to the needs of a middle class in society. And for girls there was no provision whatever beyond occasional instruction in the merest rudiments of learning. In the colleges the ecclesiastical spirit and purpose were paramount. The students were for the most part preparing for the clerical vocation in some one of the Protestant denominations. . . . The grammar schools exercised a kind of selective function, discovering latent capacity for the higher studies and starting talented youth on the way to college. Those who showed capacity of a lower grade or of a different sort seem to have received but little attention or encouragement in the schools of that day."† The instruction given in these schools followed the old mediæval tradition inherited from Europe. The spirit of the secondary schools varied much in the different colonies, but the scheme of instruction was similar in all.‡ The keynote of the studies was struck in President Chauncy's Commencement Sermon, preached in Massachusetts in 1655:—"In cities and greater towns schools should teach the Latin and Greek tongues, and Hebrew also, which ought to be had in great account with us for the Old Testament's sake."‖ In fact, the essential purpose of secondary and higher education in New England was to train ministers of religion, and incidentally those who would recruit the other learned professions. But, as the revolutionary period drew near, "governmental and ecclesiastical interests drew apart and the position of educational institutions was disturbed."¶ The development of colonial life had given rise to an urgent need for a more practical and modern education. Just as in England and in Germany, so in America, we can see at this period the rise of

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* Prepared for the Paris Exhibition, 1900. Published by J. B. Lyon and Company, Albany, N.Y. Vol. I. pp. 143 *et seq.*

† *Ibid.*

‡ E. Eggleston, *The Transit of Civilisation.* Chapter on the "Tradition of Education."

‖ *Ibid.* p. 265.

¶ E. E. Brown. *Op. cit.* p. 147.

that educational movement which has resulted in the establishment of the Realschulen and of the "modern sides" in secondary schools. Moreover there was a secularising tendency in education, coupled with a demand for a commercial training better suited to the needs of the middle class. Those who felt in sympathy with the new movement were also in sympathy with the Nonconformist minority in England. The latter, under the difficult conditions imposed by the Act of Uniformity and other statutes passed after the Restoration, had endeavoured to keep alight the lamp of learning, and at the same time to supply to the young people of their connexion a more modern training, in those Dissenting "Academies" which rendered an indispensable service to English education throughout the eighteenth century. It is natural therefore that the name "Academy" should have been attached to the new type of secondary school which arose in America. These academies, like their English counterparts, were for the most part established by funds privately subscribed for the purpose and were under the control of boards of trustees.* Their curriculum was far wider than that of the old grammar schools, devoting special attention to history, to English language and literature, and to mathematics as well as to Latin. "Natural philosophy was a favourite subject. . . . Geography was also taught. . . . French was sometimes taught; more rarely German. In the better academies the Latin and Greek languages still constituted the substantial core of the instruction offered."† The influence of these academies is still strong in American education. But, after the close of the revolutionary war, a new movement began for the State organisation of secondary education. In New York State, French "Encyclopædist" influence prevailed, and the "University of the State of New York" is still not a university in the ordinary sense of the word, but the State organisation which was intended to comprehend all the public secondary and higher education in the State. Just as the traveller in the Eastern States of America sees in the architecture of the public buildings a stratum of French influence overlying the earlier stratum of early colonial taste, so also in educational organisation there was after the revolutionary war a natural outburst of French influence which is clearly distinguishable from the earlier tradition. French influence showed itself in the strong movement against privately-governed secondary schools, and in the desire to open up secondary and higher education to the whole people by bringing all schools under the direct and exclusive control of the State government. Democracy and State control went together hand in hand. Curiously enough, America has given fuller practical expression to the educational theories of the French Revolutionary thinkers than has France herself. In France, the Napoleonic organisation

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* E. E. Brown. *Op. cit.* p. 149.

† *Ibid.* p. 154. The curriculum here described has a strong resemblance to that of the Dissenting Academies in England.

of "the University" drew a sharp line between the primary and the secondary schools. But in the United States the stream of educational democracy was irresistible. At one time it threatened to submerge the institutions of an earlier type and to destroy the incorporated rights of the endowed academy. But the United States Supreme Court resisted this tendency,* and the new City (or State) "High Schools" (the name appears to have been adopted in imitation of the High School in Edinburgh)† grew up as a supplement to the academies, not in exclusive substitution for them. The essential point of difference, however, between the high schools and the old academies was that the former were a direct outgrowth of the elementary schools, while the latter had not been so organised at all. For a long time the high schools waxed and the academies waned. Many of the older grammar schools and academies were converted into high schools and brought under direct State or municipal control. The high schools naturally diverted a certain part of the supply which would otherwise have gone to the academies. Those of the latter which survived became all the more efficient through the struggle, and "laid more and more stress on their function of preparing for college life." But it is the high school which represents what we in Europe regard as the characteristically democratic development of American secondary education, especially in the West. An English observer is well aware how easily he may misjuge Admerican conditions, but I venture to hazard the opinion that, with the exception of that of the "grammar grades" in the primary schools, the *intellectual* work of the high schools is at present, as a rule, less satisfactory than that of other parts of American education. Intellectual standards are very far from being the only thing of importance in education, and an English student heartily admires the public spirit and patriotic enthusiasm which have produced the new "High School" system in America. But it appears to him that *intellectual* efficiency has been somewhat sacrificed to the desire to cater for the *average* boy and girl who come from the primary school. It is noteworthy, however, that of late there has been a certain reversion in American opinion to the earlier ideas. "In recent years," writes Professor E. E. Brown, "the increase of wealth, the rise of new social distinctions, dissatisfaction with the colourless religious character of the high schools and many other causes, have caused a new demand for such schools—(*i.e.*, schools of the 'academy' type not under *direct* public management)—to arise. They prepare for college, but do not in general look upon this as their sole function. They are recognised as constituting a highly important part of American provision for public education. While the high schools are for day pupils only, the academies are generally boarding-schools. They afford favourable ground for the deep rooting and vigorous growth of

* *Ibid.* p. 157.
† *Ibid.* p. 156.

culture and scholarship. The more famous of them draw students from long distances, and accordingly exercise a widespread influence upon American educational standards."*

Thus even in America as in England (and, under different conditions, in France) there are signs of a reaction against the idea of Governmental or municipal monopoly in the supply of secondary education. Greater stress is being laid on those parts of education which are ethical rather than intellectual. Parents are beginning to feel that instruction is only a small part of education and that it may be actually injurious unless intermixed with a due proportion of other kinds of training. There is a growing perception of the value of corporate life in education; and of that intense and more concentrated influence which a good boarding-school may exert on the mind and character and sympathies of a pupil. Homes are often distracted and over busy. There is a difficulty in restoring the quiet, regular influence of the old-fashioned kind of home life. Parents are beginning to desire for their children educational conditions in which the mind and character can form themselves under some one set of influences. Moreover there is a growing conviction that a really good education is one of the best things in the world, and that the conditions of direct public management, on a somewhat wholesale scale and on a "popular" basis, are not always favourable to the growth of the best kinds of educational service or always compatible with the supply of the most costly and valuable sorts of moral and mental training. But let us not mistake criticism for reaction. The main stream of American educational progress runs more fully than ever in the channel of public control. Public management of national education is more than ever the root principle of American activity in educational matters. But there is evidently a great movement of thought going on as to what is the best kind of public management, and a clear perception that the problem of direct popular control in education is a far more complex and difficult problem than many of the more zealous advocates of educational democracy used to realise. Perhaps the final result will be an agreement to differ, and a readiness to put up with that composite arrangement which permits all kinds of schools, all kinds of educational influence, and all kinds of educational management to co-exist, provided that one and all are in *some* direct relation to the State, and that one and all are animated by an intense desire to promote individual culture, moral progress, and national unity. Education can never be left wholly to private effort and individual initiative. The community has far too large a stake in the matter ever to ignore its responsibility for the welfare and efficiency of the schools. But nearly everything points to the conclusion that private effort, individual enthusiasm, and the many forms of religious belief are indispensable elements in any system of national education worthy of the name. No kind of

* E. E. Brown. *Op. cit.* pp. 161-62.

administrative monopoly can ever be sensitive enough to the deeper and ever changing needs of national life. Educational problems necessarily involve questions in regard to which neither the State, nor a transient majority of votes in any particular district, nor any one spiritual society, can ever hope to succeed in getting the last word. What is needed is some combination of State sanction, of local patriotism, of religious influence, and of freedom for individual initiative. But nothing is more difficult than to secure such a combination with due regard to the rising standard of efficiency and to the claims of economy. And even when attained, the combination would require incessant readjustment. Moreover its stability would always be endangered by the growth of any desire for civil or ecclesiastical monopoly.

In the course of a discussion on "Education at the close of the Century," at the Chicago meeting of the Department of Superintendence of the National Educational Association held in February, 1900, President Eliot of Harvard University touched in the following words on "three or four of the leading features of educational progress" in America, during the last half of the nineteenth century. The fact that, with Dr. W. T. Harris, and Dr. Nicholas Murray Butler, President Eliot has himself been one of the most powerful influences in educational reform in America, makes his summary of the movement especially valuable and interesting. He speaks from close personal knowledge of the inside of the movement which has done so much to adjust American education to the new needs of the time.

"The first great movement of reform was the introduction of freedom in choice of studies—first in universities, or colleges, and later in schools. Like most other large educational movements, this change proceeded from new conditions entirely outside of the proper realm of education. It proceeded from the wonderful development of new knowledges which took place during the first half of the century, accompanied by the discovery of new principles and methods of scientific investigation. These new knowledges and new methods of inquiry commanded public attention, and created an imperative demand that youth should be instructed in them. The managers of education positively have had no option with regard to the introduction of some sort of elective system. They have been compelled to introduce it. A limited elective system was first introduced into Harvard College in 1826 during the administration of President Josiah Quincy, a layman who came late to an educational post, having previously been a Member of Congress and mayor of Boston. His two successors in the presidency did not agree with him as to the importance of an election of studies; so they tried to extinguish the system in Harvard College. The second of these presidents put on record in his own reports his failure completely to extinguish the system, and gave the true reason for the failure—namely, the incoming of such a number of new sciences and of new philosophical and practical intellectual interests that it was impossible to restrict the programme of studies in the college to the old seven or eight so-called liberal arts. Thus then the great change wrought in the second half of our century in public education was forced on college administrations from without. They had no choice; they must give to the student freedom in choice of

study; and they must so specialise the teaching that the professor should have freedom to develop throughout all his career the teaching of a single topic. . . .

"Many persons have a very inadequate conception of the meaning of election of studies. They think of it chiefly as a questionable liberty for a thoughtless student. It is really the sole means of developing thorough far-reaching university instruction in any subject, or in all subjects, and, therefore, is an indispensable means of promoting and stimulating American scholarship. It is as essential to the production of great teachers and great authors as it is to the training of well-equipped students.

"I pass on to the next fundamental change in American education—a change which is pure, far-reaching gain, and which has been wrought out better in America than in any other country. I refer to the change in school discipline. Again, this is a change brought about, not exclusively by professional teachers, but by social forces working through all the community, but especially developed in schools and colleges. Nowadays we realise that the fundamental object in all education is to develop self-control and the power to give an intense mental attention; and we realise that self-control is not to be cultivated in children under the arbitrary pressure of another's will. As a boy I went to what was considered the best public school in Boston—one famous throughout the country—the Boston Latin School; but I have to testify that the chief disciplinary motive to which I felt myself subjected during my boyhood in that school was fear—fear of the rough tongue of the teacher, fear of the harsh construction put on the childish motive and the childish conduct, and fear of physical pain as an inducement to an unnatural quietness and mental application. That is a true picture of school discipline before the middle of this century all over the world, the school world, for thousands of years; but here in about the middle of this very century came a great change. It came partly through the Church. Fear began to cease to be the prime religious motive. Men began to find out that systematic theology is an exclusively human science. They began to see that it was a marvellously presumptuous thing in one man, though he were a St. Augustine, a Calvin, or a Dr. Hodge, to undertake to state in the forms of human logic God's scheme for the salvation of men, and to describe the nature and the results of God's justice. Men began to emancipate themselves from the terrors of systematic theology. Then, too, we began to learn all over this country that government should not really be what for thousands of years government had been—the work of one arbitrary will, or of a few arbitrary wills; but rather that it should be government by the people for the people. We all began to think that the right conception of government for the citizen might teach us something concerning the government of a child. It occurred to us that, if self-government was the whole object of political freedom, then self-control might be the legitimate primary object of a child's development. Again, home discipline began to change for the better. Family government became gentler; and all these changes in society helped wonderfully to the beneficent change in the school. There has not been a more blessed change in the world than this change in home and school discipline from fear to love, from driving to leading. Wonderful has been the fruit of this change on the temper of our people and the happiness of our homes.

"I pass on to another immense change, brought about quite outside the schools and colleges, which has nevertheless affected profoundly the public provision of systematic instruction. During the last fifty years, on account of industrial changes, the population in our own country, and in most of the civilised countries of the world, has been rushing into cities and large towns. This rush into urban life has had a very ill effect on schools. It has tended to make schools large machines; and, of course, it has deprived the children of the natural out-of-door sports of country life. The grading of classes in a large school had to be inflexible, and the product had to be uniform like that of a flour-mill. That meant that the

quick children were held back and the slow were driven forward, to the great disadvantage of both sorts. It meant marking time. It meant also bad air, bad light, and crowded rooms, with fifty or seventy pupils to a teacher. These are impossible conditions for good teaching. The condensation of population introduced new risks of health; so that what was the normal rural death-rate rose in all large cities and towns to an unnatural height. The children suffered most from these increasing risks. Gradually, but chiefly within the last twenty years, we began to escape from some of these evils. We gave greater attention to good air, proper heat, and proper light; we gave greater flexibility to programmes and options among studies; in short, we attended to the conditions under which the children and the teachers worked, and tried to make them wholesome. But more than that it has been absolutely necessary to do. When a child grows up in the country it gets a natural training in accurate observation. It wants to find a four-leaf clover; it runs to see where the green snake went to; it tracks the woodchuck to its hole and gets it out; it learns the songs of the birds; and knows when the smelts run up the brooks, and when the twilight is just right for finding the partridges. In short, the country child gets naturally a broad training in observation. It also has on the farm an admirable training in manual labour. From an early age it can actually contribute to the care of animals, the successful conduct of the household, and the general welfare of the family. In the city all this natural training is lacking, and substitutes for it have to be artificially provided. This necessity has brought into our schools nature study and manual training, to teach the child to use its eyes and its hands, and to develop its senses and its muscular powers; and these new beneficent agencies in education already well in play are in the near future to go far beyond any stage at present reached. We do not yet see how to replace in urban education the training which the farmer's boy or the sea-coast boy gets from his habitual contest with the adverse forces of nature. The Gott's Island boy, on the coast of Maine, goes out with his father in the early winter morning in a half-open sailboat to visit their lobster traps and bring home the entrapped lobsters. They start with a gentle breeze and a quiet sea, though the temperature is low. The boy knows just how to steer the boat five or six miles to sea, where the traps are sunk on some rocky spot which the lobsters love. The father is busy pulling the traps; the boy watches the weather, and suddenly he says: 'Father, there is a southwester coming. See the clouds driving this way over the hills!' The boy knows just as well as the father what that means. It means a fearful beat to windward to get home, facing a savage wind and a falling temperature, the spray dashing over the vessel, and freezing to the sails and ropes, and loading down the bow with ice. It means a life-and-death struggle for hours—the question being: Shall we get into harbour or not before we sink? Now, that is a magnificent training for a boy, and the sheltered city offers nothing like it. The adverse forces of nature, if not so formidable that men cannot cope with them, are strenuous teachers; but in modern cities we hardly know that the wind blows, or that the flood is coming, or that bitter cold is imperilling all animal life.

"Lastly, a new motive is presented in our day to the teacher, the parent, and the children—the motive of joy through achievement. The great joy in life for us all, after the domestic affections, is doing something and doing it well, getting where we want to get, and bringing others where they would like to be. Give every child, we say, the joy of achievement. Do not set it to do what you know it cannot do well. Set it to do what you think it can do well, and show it how. That is just what goes on in a happy kindergarten, or in a successful university conference or seminary. This is a new and happy aim in modern education—joy and gladness in achievement. I need not say that freedom is necessary to this joy. Schools used to set children doing things they could not do well. That, fellow-teachers, is the unpardonable sin in educational administration.

It is not for the happiness of the children only that this new motive—to increase joy—has come to bless us. It brings new happiness to the teacher also. It is means of happiness for everybody throughout life. As a result of the advent of this new policy we are learning not to use with children a motive that will not work when the children are grown up. To be sure, we must admit that this doctrine condemns almost all the school discipline of the past, and much of the family discipline; but the future will not mind that, if it finds the new doctrine beneficent."*

The National Educational Association appointed in 1892 a "Committee of Ten on Secondary School Studies." The report of this committee, issued in 1893, is full of interest for students of education.† President Eliot was the chairman of the committee, which included many eminent representatives of primary and secondary education. The aim of the committee was essentially practical, *i.e.*, the adjustment of relations between the secondary schools and the colleges or universities, but, in order to attain this practical end, it was necessary for the committee to consider the very difficult question, What should be the balance of studies in a secondary school? Their final recommendations were based on the reports of nine sub-committees or conferences, each of which had investigated the best means of teaching one subject, or group of subjects: viz.:—Latin, Greek, English, other Modern Languages, Mathematics, Physics (with Astronomy and Chemistry), Natural History, Biology (including Botany, Zoology, and Physiology), History (with Civil Government and Political Economy), and Geography (including Physical Geography, Geology, and Meteorology).

The committee reported in strong terms against secondary school courses of a feeble and scrappy nature—"studying a little of many subjects and not much of any one, getting perhaps a little information in a variety of fields but nothing which can be called a thorough training."‡ How, they ask, is this to be secured under present conditions and amid the clamour of the competing claims advanced on behalf of so many subjects? The answer is threefold. (1) Knit the subjects as far as possible into one well articulated course and (for the purposes of that course) discard most of the outlying subjects. Avoid scrappiness and practise correlation. (2) Take steps to get more highly trained teachers who will concentrate themselves on essentials, who will avoid waste and irrelevancies, and who will unify their instruction through imparting to the whole of it a scholarly and cultivated point of view (3) Group all the subjects and encourage four years' training in each of four main lines of study (*i.e.*, language, mathematics, history, and natural science). During the first two years of the course introduce the student to all the principal fields of knowledge in order that his intellectual quality may be tested and his natural

* Report of the National Educational Association, 1900. pp. 196–99.
† Issued by the Bureau of Education, Washington
‡ Report, p. 52.

tastes revealed. Then, in the remaining two years, let him follow up (though with due regard to an all-round discipline) those studies for which he has shown a special aptitude. Regard all subjects as equivalent in educational rank for admission to the college or university, and encourage the latter institutions to accept certain groups of studies as qualifying the pupil to enter on academic work.

But these proposals rest on a fundamental principle which the committee enunciate in the following terms. It will be seen that they discard the idea that the secondary school is merely to be regarded as an antechamber to university or higher studies. Their view is that the secondary school is the crown of primary education, not a passage-room between the primary school and the university. They are far from ignoring the fact that some secondary schools are preparatory institutions to the universities, but they deny the right of the universities to *control* the higher studies of the secondary schools.

"The secondary schools of the United States, taken as a whole, do not exist for the purpose of preparing boys and girls for colleges. Only an insignificant percentage of the graduates of these schools go to colleges or scientific schools. Their main function is to prepare for the duties of life that small proportion of all the children in the country—a proportion small in number, but very important to the welfare of the nation—who show themselves able to profit by an education prolonged to the eighteenth year, and whose parents are able to support them while they remain so long at school. There are, to be sure, a few private or endowed secondary schools in the country, which make it their principal object to prepare students for the colleges and universities; but the number of these schools is relatively small. A secondary school programme intended for national use must therefore be made for those children whose education is not to be pursued beyond the secondary school. The preparation of a few pupils for college or scientific school should in the ordinary secondary school be the incidental, and not the principal object. At the same time, it is obviously desirable that the colleges and scientific schools should be accessible to all boys or girls who have completed creditably the secondary school course. Their parents often do not decide for them, four years before the college age, that they shall go to college, and they themselves may not, perhaps, feel the desire to continue their education until near the end of their school course. In order that any successful graduate of a good secondary school should be free to present himself at the gates of the college or scientific school of his choice, it is necessary that the colleges and scientific schools of the country should accept for admission to appropriate courses of their instruction the attainments of any youth who has passed creditably through a good secondary school course, no matter to what group of subjects he may have mainly devoted himself in the secondary school."*

This is the determinative passage in the report, and marks the democratic character of the committee's recommendations. The fact that so distinguished a committee thought it necessary, after considering all the circumstances of the case, to adopt this view, makes criticism unnecessary. The committee knew American conditions, and in making its recommendations had American conditions in view. But to regard those recommendations as being

* Report, pp. 51-52.

appropriate to English circumstances would be as imprudent as to question their appropriateness to America. To me, at least, it would appear a grave error to regard national secondary education as being principally intended to provide a crown to primary education, though there should be (as part of the system of national education) ample and generous provision for such a crown. Let us not overlook (as we have too much been in the habit of overlooking) the need for providing certain types of secondary education specially and designedly fitted to the needs of those who will not proceed either to the University or to the Technical High School. But let us not regard those needs as determinative, because of their numerical superiority, of the aims and character of the chief part of the national secondary education. Has it not always been, and must it not continue to be, one of the most important duties of the most intellectually developed part of national secondary education deliberately to subordinate its work to the need of preparing its most promising pupils for their later studies at places of higher education? I admit that there is at present need for protest against what has become in some respects an obsolete state of things. Academic studies in some of the English Universities need revision in view of modern needs. But when once this readjustment has been heartily taken in hand, (it is to be hoped from inside the institutions themselves), there will probably spring up a revival of feeling in favour of making and keeping a considerable number of secondary school-curricula directly preparatory to such higher training. Moreover, let us not take a merely quantitative view of school subjects. Different studies vary in value for particular purposes and in their appropriateness to different types of mind. As President Baker said, in a weighty protest attached to the report of the "Committee of Ten" referred to above, "Studies vary in value for the training of the different powers . . . and the choice cannot be regarded as a matter of indifference." In short, are we not once more led to the conclusion that the real need is for variety of curricula, coupled *in every case* with the imperative requirement of intellectual efficiency, of reasonable physical training and of healthy moral tone?

Thus, as regards the comparative value of different subjects in secondary school curricula, exactly the same questions are at issue in American as in German and in French secondary education. But whereas in France and Germany the State has to decide, in America a decision has to be reached through general discussion and agreement. In all three cases, however, public opinion ultimately determines what the decision shall be. All over the world the same difficulties are pressing on those responsible for guiding the studies of the secondary schools. People are far less confident about these subjects than they were twenty or thirty years ago. The complexity and intricacy of the problem are more fully recognised than was the case before. In regard to education, as to so much else, the student will echo the words uttered by Richard Baxter in

1664 :—" Now I find greater darkness upon all things and perceive how very little it is that we know in comparison of that we are ignorant of."

There is a strong desire in America to prolong, as far as may be, the years of general and liberal education, and to put off till as late a date as possible that separation and specialisation of studies which necessarily begin when the pupil is being prepared for a given calling in life. All over the world, the democratic tendency in education is to keep the secondary school as far as possible a sort of general finishing school for pupils from the primary schools, and therefore to put off any early specialisation of types of study in the secondary schools. Professor Brown writes: "Americans are loath to recognise any necessity of a bifurcation of courses, such that the student taking one road finds the way open to indefinite advancement in higher studies, while one taking the other alternative finds a definite limit a little way before him. *We have commonly failed to recognise the need of turning aside at some point, early or late, to master a distinct occupation in life. We have been willing to sacrifice expertness in one's calling to the hope of unlimited progress in higher culture.*"*

This is the gravest question at issue in American secondary education. The new demands of technical efficiency are beginning to threaten the old ideal of an almost indefinitely prolonged general secondary education for all classes.

The rise of the new demands is best illustrated by the opinions of those specially interested in engineering education, *i.e.*, in the education of boys for a new and highly scientific calling, for which the older type of secondary school offered no technical preparation. In the course of a discussion on this subject in New York, in July, 1900, Mr. M. P. Higgins made the following remarks :—

"The common-school system seems to be nearly perfect for taking the boys up to the high-school period, but from this point up to the engineering schools the great masses of our boys, who ought to be trained as superior, thinking mechanics, are drifting aimlessly, and our shops and factories are being unsatisfactorily filled by foreign-born boys, whose mechanical ability is not equal to that of our native boys.

"It is evident, in the great industrial battle for future supremacy, under the inevitable system of intensified production, that our best boys with the best possible training will be needed; but, aside from this necessity, there is no field so promising and attractive as this for an unlimited number of educated, skilled workmen." †

The report of the Committee of the Society for the Promotion of Engineering Education touches on the same difficulty :—

"Your committee are of the opinion that heretofore we all have relied too much upon the common schools and upon native ability. We have also

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* *Monographs on Education in the United States*, Vol. I. p. 182.

† Preliminary Report of a committee of the Society for Promoting Engineering Education; Discussion, p. 36.

conceived the generic American boy or girl as conditioned in a single way, and then have provided educational means and methods to fit this particular condition. But the average or generic boy is no particular boy, and his average condition fits few particular cases. We forget that they are particular boys who are to be trained to do the business of the coming generation, and these particular boys are of all ages, conditions, tastes, and capabilities. Your committee are quite agreed that in America every boy should find his career entirely open at the top. Society here is not to be stratified horizontally, but rather vertically. Our educational ways and means, therefore, must be planned for the purpose of helping every boy or man to make the most of himself, and hence to return to society the most he is capable of. But educational benefits cannot be conferred upon unwilling subjects; neither does the wish always bring the opportunity. Our industrial educational advantages and opportunities, therefore, should be both attractive and available to all classes and to all ages. Any person wishing to improve himself, and to make of himself a more useful citizen, should find an opportunity for gratifying this high ambition. There are now in this country only the beginnings of systematic educational opportunities for young people to learn the theory and practice of particular employments for which they are fitted by nature and in which they long to become engaged. We have an excellent system of public and endowed schools, in which are more or less well taught the elements of knowledge, and in which a very considerable mental capacity is developed. After leaving these schools our boys *know* something, so far as knowledge can be gained from books and oral instruction, but they can *do* little or nothing. This mental, abstract, and *memoriter* education needs to be supplemented by a manual, industrial art, commercial or engineering education, if the boy is to become a doer or a director. He then not only *knows* something, but he can *do* something, and because he can do something he is worth something to society. However much a man *knows*, he is a drone in the hive if he cannot do something for the common good. It must be understood we are not asking for utilitarian education *in place of* a mind-informing and mind-developing education, but to supplement such cultural education as the boy or girl has been able to obtain. Neither do we care to insist upon young people availing themselves of this utilitarian education. We are only concerned that it should be offered, and we have every reason to believe that it will be a long time before the facilities will outrun the pressing demand for any kind of education which will enable a man to rise, in honour and in usefulness, in his chosen calling. We are not concerned to find the pupils, we are only concerned to provide the schools."*

Another force in the direction of differentiating types of secondary schools in view of the need of preparing (in no narrowly-specialised sense, but effectively and economically) for specific callings, is found in the growing feeling against hustle and overcrowding in school curricula. The demand for a good preparation for practical and commercial life, combined with the strong desire to retain as far as possible the common measure of liberal education open to all, has led to the multiplication of subjects in secondary schools.

"The demand for a multiplicity of studies in secondary schools," writes Mr. Jacobs, "is one which has made itself heard very clearly and one to which the schools have yielded, at first with reluctance, finally with enthu-

* *American Industrial Education, What shall it be? Preliminary Report of a Committee of the Society for the Promotion of Engineering Education, made at the New York Meeting, July 2nd and 3rd,* 1900, pp. 2-3.

tiasm. The result is a vast variety of studies. It is almost impossible to name any subject of study so trivial or yet so difficult that it does not find a place in these schools. Studies are thrust into the schools so new that the subject-matter is still to be found only in magazines. Not even the subject-matter is really known, much less the results of instruction for the pupil. There is a mighty rush to keep up with the times. . . .

"For the most part the studies which have gained entrance have had for their open sesame the word practical or useful. With the continued division of labour and the opening of new industries, the denotation of the word practical has been very much enlarged. The result is a programme so crowded that everything lives at the expense of everything else. Latin cannot have its due lest English be defrauded. English must suffer that Latin may at least live. The hurry and rush of our adult life are duplicated in the life of the child."*

The remedy for this overcrowding of subjects is not narrow specialisation, but differentiation of types of secondary school. This, however, would involve a somewhat earlier choice of a profession. But differentiation of types of schools would be a national misfortune if it impaired the free intermingling of boys from all classes of society, which has been one of the great glories of American education. There is no reason, however, why such differentiation should not be accomplished, within moderate and reasonable limits, without any sacrifice of the democratic character of the schools. The best education needs a quiet atmosphere. Hurry and drive are injurious to it. It needs a clear aim and a well-defined course. The teachers require leisure in order constantly to deepen their knowledge of the subjects which they teach, and in order that they may devote a large amount of time to the society of their pupils.

"There are three points," writes Mr. Jacobs, "in which secondary schools in general are failing to do what the people want. First, despite the multiplicity of studies offered, they are not able to fit the courses to the individual in a rational way. This arises from the fact that individuality and educational values are practically unknown quantities. The schools are like a physician well supplied with powders and pills, but ignorant of the laws of health and the effects of his medicines. This physician, at a loss to know how to prescribe, allows the patient to make his own selection. The remedy for the physician is more knowledge of his pills and more knowledge of his patient. The remedy for the schools is the same. Unti the courses of study are arranged on a rational basis and the teacher is able to show such knowledge and success that parents and pupils will have more confidence in his judgment than their own, success must be limited and uncertain. Second, the people are not satisfied with the thoroughness of the work done; particularly in English and upon matters of simple nature, where the common man can be a judge. They are of the opinion that the work is not as thorough as it was in former times. The remedy for this is not to be found in rejecting new methods which are founded upon an appeal to the self-activity of the pupils, and a return to the old methods which relied upon drill and mechanical memory, but rather in the union of the new methods and the old methods. Neither, taken alone, is complete. The one must supplement and complete the other. Third, the people feel that the work exacted of the pupils does not allow proper opportunity for what seems to them necessary to a true education. Outside studies are added: music, instrumental and vocal, art, dancing, recreations. The school finds the home acting, intentionally or unintentionally,

* *Educational Review* (New York), May, 1901, p. 450.

at variance with its plans. The home and school seem to be at cross purposes. The remedy is for the school to take a much more complete cognisance of the entire life of the pupil than it does at present; for the school to become an institution not merely for instruction, but an institution for education."*

In England there are just complaints of the prevailing standard of modern language teaching in many secondary schools, and of the need of improvement in this regard, with special reference to the requirements of commerce. The same complaint was made by Mr. William Barber, of New York, at the International Commercial Congress held at Philadelphia in October, 1899.

"What are we Americans doing in the way of schools for training our young men for commercial life in foreign countries? It is true that sons of rich men can go to college and learn languages as taught there, that is, to read and write, general composition, but I do not know of a school or college where a young man, who wishes to fit himself for a commercial traveller in any foreign country, can learn the commercial language of that country. I regret to say that, as a rule, the sons of our manufacturers care more for base-ball, golf, rowing, and other athletic sports than they do about international law or commercial languages. If an American firm wants a foreign traveller, are they able to find an American who can speak the German, French, or Spanish languages who is competent to do it? They may, but they are very scarce.

"I know of a firm who recently advertised for a traveller for Europe. They stipulated that applicants must be able to speak and write German and French. They received several hundred applications, but not one per cent of them were American-born citizens.

"The question is often asked, Which is to be preferred, a man who speaks the language, knows the customers, the customs of the country, but does not understand American ways of doing business, or the possibilities of American goods; or of the manufacturers to supply goods to meet all requirements; *or* an American who thoroughly understands the goods he is to sell, their possibilities, American ways of doing business, and is imbued with American ideas and enterprise, but who is not able to speak the language, and does not know the customs of the people? Having tried both in connection with the sale of agricultural machinery, I will take the latter every time.

"I know a man who represented a manufacturer of harvesting machines in Europe; he could not speak anything but the English language. A trial of different makes of machines was to be held. All the other representatives were foreign-born and spoke the language, but their machines were of American manufacture, and did not understand their language. My friend, being an American, and his machine being of American manufacture, understood each other so well that the judges employed a talking machine to tell him that he had won the first prize, and the principal dealer employed the same talking machine to secure the agency.

"The American commercial traveller has no equal in any country; his enterprise, hustle, and acuteness are proverbial; he possesses a species of 'contagious enthusiasm,' and has the faculty of inoculating all with whom he comes in contact with this enthusiasm for American goods.

"The American commercial traveller is at a great disadvantage by reason of not having the proper commercial education, but we are fast realising the advantages of travellers having such an education, and I predict that

* Educational Review (New York), May, 1900.

in the very near future such schools will be established and equipped with the best teachers and apparatus the world can supply.

"Give American commercial travellers the advantages of such an education, and our European cousins will have to look closely to their laurels, or the United States will soon become the centre of the world's commerce."*

But the leaders of American education show a united front against any narrowly commercial spirit in the secondary schools. The business atmosphere in America is already so tense that it is the duty of the secondary school rather to provide a counteracting influence than to intensify the interest in commercial matters. The true claims of linguistic study are based, not on anticipated advantage in commercial bargaining, but on the need for training to the highest possible point the gift of expression through which a man enjoys fulness and freedom of intercourse with other men. The claims of French and German are increasingly recognised, but there is also a distinct growth of the opinion that the study of the classical languages is, under present conditions at any rate, indispensable to national culture. While the Norwegian democracy is showing itself antagonistic to Latin, the American democracy is moving in the reverse direction. Dr. Hadley, President of Yale University, has recently made the following observations on this subject:—

"We have use alike for education in English, for education in other modern languages, and for education in the classics. If we had to choose between the three, there is no question that English is the most important. It is the language in which our work is done. The man who is a master in its use possesses a power of control over those about him which can be obtained in no other way. He has an unrivalled command of synonyms which give exactness to his thought; for there is no language which is nearly so rich as English in words to designate the different subjects of modern interest. But this does not mean that it ought to be taught to the exclusion of everything else. Every one recognises that we have so much need to use French and German that no man can be called fully educated who fails to have some knowledge of both these languages. Our national problems may perhaps be solved by English alone; international relations involve the knowledge of many other tongues besides.

"The reason for the study of the classics is at first sight less obvious. The time spent upon them is so great, and their tangible usefulness seems so small, that many people regard the whole matter as a waste of labour. Such reformers would have our schoolboys read Homer or Cicero in translations, and would have the time for grammatical drill spent upon English sentences, instead of Greek or Latin. The chief difficulty with this plan is that we have at present so few teachers who are competent to give good instruction in English, except through the medium of Latin or Greek. Over and over again have I heard men argue for the extension of English teaching in place of the classics when the speakers showed by their diction, their grammar, and their rhetoric that they had not the least conception of what good English expression really was. No man thinks that he can teach Latin without having studied it. His knowledge of Latin may be defective in a great many ways, but he at least knows his deficiencies. On the other hand, there are thousands of men who have never thoroughly studied English, but who would be insulted at the suggestion that they did not know it well enough for all practical purposes, including those of

* Report of the Congress, Eighth Days' Session, October 20th, 1899.

instruction. The marvellous grammatical system of Latin or of Greek coming to us in a foreign language, arrests our attention, and makes teachers and scholars feel that it is something to be seriously studied. When we have a body of instructors who are ready to teach English with equal seriousness, and are able to suppress that vastly greater body who handle it mechanically or carelessly, then—and not till then—shall we be able to talk of superseding the classics in our educational system. Under present conditions they remain vitally important to the welfare of the country as a means to accurate expression and clear thought in the communications between man and man."*

No writer has gone so far as Professor Dewey, of Chicago, in challenging the dominant ideals of American secondary education. His stimulating writings, though they may fail to carry conviction to most of his readers, are significant of the unrest which is disturbing educational opinion in so many countries at the present time.

"If we go back a few centuries," he writes in *The School and Society*,† "we find a practical monopoly of learning. The term *possession* of learning was indeed a happy one. Learning was a class matter. This was a necessary result of social conditions. A high priesthood of learning which guarded the treasury of truth, and which doled it out to the masses under severe restrictions, was the inevitable expression of these conditions. But, as a direct result of the industrial revolution, this has been changed. The result has been an intellectual revolution. Learning has been put into circulation. While there still is, and probably always will be, a particular class having the special business of inquiry in hand, a distinctively learned class is henceforth out of the question. It is an anachronism. Knowledge is no longer an immobile solid; it has been liquefied. It is actively moving in all the currents of society itself. Stimuli of an intellectual sort pour in upon us in all kinds of ways. The merely intellectual life, the life of scholarship and of learning, thus gets a very altered value. Academic and scholastic, instead of being titles of honour, are becoming terms of reproach. But all this means a necessary change in the attitude of the school, one of which we are as yet far from realising the full force. Our school methods, and to a very considerable extent our curriculum, are inherited from the period when learning and command of certain symbols, affording as they did the only access to learning, were all important. . . . Our present education is highly specialised, one-sided, and narrow. It is an education dominated almost entirely by the mediæval conception of learning. It is something which appeals for the most part simply to the intellectual aspect of our natures, our desire to learn, to accumulate information, and to get control of the symbols of learning; not to our impulses and tendencies to make, to do, to create, to produce, whether in the form of utility or of art."

Professor Dewey applies these considerations to every branch of educational work, but it is in the sphere of secondary education that the crisis, caused by the growth of new social needs, has become most acute.

"The secondary school," he writes, "is between the upper and the
* ...er millstone. On one side it is subject to pressure from current public
Londo...

† Chi...e *Education of the American Citizen.* (New York: Scribner's Sons. ... Edward Arnold. 1901), pp. 154–156
...go University Press, 1899, pp. 39 *et seq.*

opinion, on the other to the pressure of university tradition. While the public high school is more sensitive in the former direction, and the private academy the more sensitive in the latter, neither one can be free from both influences."*

"The schools are not doing, and cannot do, what the people want until there is more unity, more definiteness, in the community's consciousness of its own needs; but it is the business of the schools to forward this conception, to help the people to a clearer and more systematic idea of what the underlying needs of modern life are, and of how they are really to be supplied."

But, in the meantime, there is deep-seated unrest, unsettlement in the plan of studies, dislocation of effort. And all this is the result, the inevitable result, of the new conditions produced by the intellectual and industrial revolution.

"The problem of the multiplication of studies, of the consequent congestion of the curriculum, and the conflict of various studies for a recognised place in the curriculum; the fact that one cannot get in without crowding out something else; the effort to arrange a compromise in various courses of study by throwing the entire burden of election upon the student, so that he shall make out his own course of study—this problem is only a reflex of the lack of unity in the social activities themselves, and of the necessity of reaching more harmony, more system, in the direction of the people's needs. The multiplication of studies is not primarily a product of the schools. The last hundred years has created a new world, has revealed a new universe, material and social. The educational problem is thus not a result of anything within our own conscious wish or intention, but of the conditions in the contemporary world."†

The new factor in the situation is the development of science: a development which "affects all professions and occupations; which touches municipal government as well as personal hygiene; and which affects the calling of the clergy as significantly, ... as that of the lawyer. An intellectual and social development of such scope cannot possibly take place and not throw our educational curriculum into a state of distraction and uncertainty.‡ The trouble cannot be avoided by the simple device of confining ourselves within the limits of the older educational tradition. Even were it possible (which of course it is not) to banish sciences from the curriculum, and confine the latter to the humanities, the difficulty would remain. What is going forward is no mere struggle between the humanities and "applied science." It is the advance of the scientific spirit over the whole field of knowledge, including the "humanities." New subjects are demanding a place in the studies of secondary schools —or rather old studies treated in a new spirit. History, political science, and political economy are all pressing for admission into school curricula, and place must be found for them if the schools are going to interpret, and prepare for, life. But these studies are being transformed under the influence of the scientific spirit. This is the intangible but penetrating cause of the unrest.

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* *Educational Review* (New York), May, 1901. *Are the schools doing what the people want them to do?* p. 461.

† *Educational Review* (New York), May, 1901. p. 464.

‡ *Ibid.* p. 465.

"The ferment which is happily going on in the college is because the leaven of all modern life is at work. There seems a certain lack of perspective, a certain lack of sanity and balance in those arguments regarding the college curriculum that assume that the subjects are already in a settled condition, that there are ready-made standards by which to measure their various claims, and that it only remains to pick out just so much of this and so much of that and put an end to all this confusion and conflict which is troubling us. Until the various branches of human learning have attained something like a philosophic organisation, until the various modes of their application to life have been so definitely and completely worked out as to put even the common affairs of life under scientific direction, confusion and conflict are bound to continue. When we have an adequate industrial and political organisation it will be quite time to assume that there is some off-hand and short-cut solution to the problem of educational organisation. In the meantime it is somewhat ridiculous to argue as if there were somewhere a definite set of specific educational recipes which the managers of the collegiate institutions might fall back on, and then serve out just such and such an intellectual diet to those eager for the intellectual feast." *

Nor is it possible to take refuge from the intellectual difficulties by saying that schools must make it their chief concern to develop character. What is meant by "character"?

"Character involves, not only right intentions, but a certain degree of efficiency. And efficiency, as biologists have made us very well aware, is a problem of adaptation, of adjustment to the control of conditions. Are the conditions of modern life so clear and so settled that we know exactly what organs, what moral habits and methods, are necessary in order to get the maximum of efficiency? Do we know how to adjust our teaching to securing this maximum?" †

But, it may be urged, it is at any rate the duty of the higher secondary schools to preserve, in the midst of a bustling and hurrying world, the tradition of culture. Here, again, Professor Dewey challenges the traditional point of view.

"Doubtless, the current implication is that general culture and professional utility are quite independent of each other. The notion of absolute antagonism is, doubtless, wearing away. Like the similar conception of a fixed and obvious gulf between the elect and the unregenerated, it cannot stand the pressure of the interaction of modern life. It is no longer possible to hug complacently the ideal that the academic teacher is perforce devoted to high spiritual ideals, while the doctor, lawyer, and man of business are engaged in the mercenary pursuit of vulgar utilities. But we have hardly reconstructed our theory of the whole matter. Our conception of culture is still tainted with inheritance from the period of the aristocratic seclusion of a leisure class—leisure meaning relief from participation in the work of a workaday world. If I were to venture into what might appear to you the metaphysical field, I think I could also show that the current idea of culture belongs to the pre-biological period—it is a survival of the time when mind was conceived as an independent entity living in an elegant isolation from its environment." ‡

And if, in the last resort, the defender of the older view of secondary education argues that "the college stands for the remnant and is the fortress of the few who are capable of upholding high

* *Educational Review* (New York), May, 1901. p. 4[illegible]

† *Ibid.* p. 469.

‡ *Ibid.* p. 470.

ideals against the utilitarian clamour of the many,'[1] Professor Dewey will have none of such arguments, pushing them aside as mere relics of the dark ages.

"All this I say frankly and emphatically I regard as a survival from a dualistic past—from a society which was dualistic practically and politically, drawing fixed lines between classes, and dualistic intellectually, with its rigid separation between the things of matter and of mind—between the affairs of the world and of the spirit. Social democracy means an abandonment of this dualism. It means a common heritage, a common work, and a common destiny. It is flat hostility to the ethics of modern life to suppose that there are two different ends of life located on different planes; that the few who are educated are to live on a plane of exclusive and isolated culture, while the many toil below on the level of practical endeavour directed at material commodity. The problem of our modern life is precisely to do away with all the barriers that keep up this division. If the university cannot accommodate itself to this movement, so much the worse for it. Nay, more; it is doomed to helpless failure unless it does more than accommodate itself; unless it becomes one of the chief agencies for bridging the gap, and bringing about an effective interaction of all callings in society."*

I have quoted from Professor Dewey's address at considerable length, because his views are a striking expression of the unrest which is at work in American, as in European, education. He has thrown into a philosophic form the instincts of a rather levelling democracy as applied to the problem of educational reform. He frankly avows his hostility to the old tradition, social and educational. The positive side of his argument rests on a very sanguine view of human nature, and on the assumption that we can safely cut ourselves off from the wisdom latent in well-established educational tradition. Like Rousseau, he takes it for granted that men, when liberated from the fetters of tradition, will naturally co-operate with one another in happy and fruitful activities. There rings through all his writings the revolutionary note. But, whether or not we accept his view of the future or his estimate of human nature, we must heartily acknowledge the critical power shown in his analysis of the present educational situation. His criticisms deepen our sense of the intricate difficulty of the problem of educational reform. And do they not point to the conclusion that educational reform, in any true sense of the word, implies not merely administrative change, or amendment in the course of studies, but a new outlook on life, and some more general agreement in regard to social and moral aims? Knowledge and science are more and more necessary, but still more essential is the strengthening of character. No army in the world owes more than the German to historical studies and to patient scientific preparation. Yet it was Moltke himself who said that "for the conduct of an army, character weighs more than knowledge or science."

* *Educational Review* (New York), May, 1901, p. 471.

CHAPTER V.

CONCLUSION.

FINALLY, I propose to submit to the consideration of the reader some of the conclusions to which the previous chapters seem to point, but the questions at issue are so intricate, so many-sided, and of such far-reaching difficulty, that different minds will doubtless draw different practical conclusions from the facts which I have described, and every student of the subject will feel that many of his conclusions are only provisional and tentative.

Every other great nation is making unexampled efforts to improve its system of education. In some important respects we in England have dropped behind in the race. We need much more and much better secondary education for boys who will leave school for business at the age of sixteen. We need better teaching of living languages, including our own mother-tongue. We need much more ample provision for organised research in nearly every branch of knowledge. And we need much more of the highest kinds of professional and technical training. We cannot afford to be indifferent to what is being done abroad. Germany and the United States of America are conspicuous in the struggle for educational supremacy. Both nations are convinced that educational efficiency is a necessary part of the foundation of national greatness and of commercial success. What they and other nations have already done, and are preparing to do, has made searching educational reform in England a pressing national need.*

But the educational problem is not a problem by itself. It is one aspect of the whole social problem. It cannot be isolated from the ethical, economic, and social issues, which underlie it and are interwoven with it. Our view of what should be the aim or aims of national education is bound up indissolubly with our preference for one or other type of social organisation, and with our judgment as to the comparative importance of this or that end of national policy. If we shirk the task of trying clearly to think out our educational aims, our educational organisation cannot help being expensively chaotic. But aims of some kind, implicit or explicit,

* Speaking at the University of Birmingham on July 6th, 1901, Mr. Chamberlain said:—"The fact is that the more I study this question of higher education the more I am persuaded of its enormous importance to this country, the more I am convinced of our own deficiencies, both absolutely and in comparison with those other nations which are our competitors in the struggle, I will not say for existence, but, at all events, for a foremost place in the rank of the nations of the world. And I regard this opening time of the twentieth century as a critical time in the history of British education, and of the higher education which has hitherto been too much neglected, and I am convinced that, unless we overcome the innate conservatism of our people in regard to new discoveries, in regard to the application of the highest science to the commonest industries and manufactures in our land, we shall certainly fall very far behind in the race."

any system of national education must have. Under certain conditions, however, the aims embodied in different parts of the national education may conflict with one another. They may even be traditional, inarticulate, and almost unconscious. For a long time this was true of English education. But within recent years forces beyond our control have brought the different parts of national education into much closer contact with one another. At the present time much of the disturbance in English public opinion on educational matters seems to be due to a confused struggle between the conflicting aims which, in the course of history, have become embodied in what purports to be one national system, but which in reality is a bundle of systems, each hitherto virtually independent, each representing different tendencies of thought, and each congenial to some large section of the nation, though perhaps somewhat repellent to the rest. For example, we have four types of education of boys of primary school age; (1) the practical training given in the industrial schools, (2) the influences of the strictly denominational elementary schools, (3) the board schools, and (4) the traditions of those schools which prepare for the great public schools. These are all representative of quite different currents in educational thought. It is characteristic of English freedom that all four should have kept their place within the compass of national education. We are now finding ourselves compelled, partly by the unifying pressure of modern life, partly by the increasing competition of other nations (a competition which is not merely for supremacy in trade but for the supremacy of certain ideals of government and of social order), to discover some synthesis of our educational aims, some foundation on which educational unity can be based, and some standard by which we can agree to measure true educational efficiency. This task is more difficult than that which has confronted any other nation in the reorganisation of its educational system. England is, as it were, the seed-plot of conflicting ideas about Church and State, about the individual and the community. It has been so for three hundred years, and the two sets of ideas which bore the names of Anglicanism and Puritanism, still persist among us under changed forms of expression and of thought, producing a constant clash of convictions, invigorating our life, and always tending to form a middle party of combination or compromise, which, however, can never exercise dominion over either of the two extremes. It would be easy to set up a national system of education for either extreme alone. The difficulty is to establish one which is both efficient and comprehensive, and yet at the same time strong enough to resist attempts at monopoly proceeding from either of the two extremes. Thus our English education, like so many other aspects of our national life, is distinguished by its attempt to balance conflicting forces in one working system, to reconcile contraries, and to seek unity through a bold diversity.

We can no more transplant educational systems ready-made.

from one country to another than we can transplant historical traditions. All good and true education is an expression of national life and character. It is rooted in the history of the nation and fitted to its needs. It seeks, often by instinct and natural self-adjustment rather than by conscious intention, to strengthen what is weak in national character and to cultivate what is strong. Much that is best in it seems to baffle analysis, and is felt rather than expressed. In national education the two most valuable things are a great ethical tradition and a strong popular interest in the people's schools. Throughout a great part of our English education we possess the first; but, as compared with Germany and America, we are singularly lacking in the second. The ethical tradition of our best schools is admired all over the world; but our intellectual *average* is low. Our education is sectional; theirs is increasingly national. We are at present divided where they are at one. Our strength is spent in tension between various educational aims. Theirs is at present running fast in one channel. With them the masses of the people believe in the schools, care for the schools, and realise what the schools stand for. With us, the masses of the people seem, as yet, almost indifferent about the schools, and not convinced that a good education is one of the things for which it is most worth while to make great personal sacrifices. But the rising standard of education abroad compels us to improve ours also. No nation can live to itself alone. Their improvements force us to act in self-defence. We are bound to scrutinise their results, and, in so far as their results excel ours, to improve our methods, in order to produce *in our own way* something which, while remaining characteristic of English life, will be better of its kind than what is produced anywhere else in the world. Yet we cannot merely copy what other nations have done. A school is not a mechanical contrivance, like a repeating rifle or a submarine boat. It is an institution, not a piece of mechanism. Its best strength lies, not in its material equipment, but in its human sympathies, in its intellectual interests, and in its spiritual influence. But as an institution the school must be equipped with the very best mechanical aids which human invention has devised. Many of these mechanical aids can be copied, or rather adapted, by one nation from another. So can many methods of teaching, some forms of administration, and labour-saving devices of various kinds. But the essential thing in a national system of education is the national spirit, so trained as to enter into a sympathetic understanding of the points of view of other nations, but learning to express itself and its own point of view, in the most effective way possible, through the most appropriate types of education and of schools. We in England have to deal within a small compass with perhaps the most complex conditions that can be found in any national society in the world. We have to deal with one of the most complex of all national characters and with one of the most intricate forms of national and imperial life. Here, as in other countries, the educational problem is an epitome of the national problem. Where the latter is complex, the former is com-

plex in proportion. Hence, as our national life is extraordinarily complex, our educational system will be complex in the same degree. The unity at which we should aim is unity of national feeling, and this seems most likely to be reached, not by the suppression of varieties of educational effort, but by encouraging all those varieties (in so far as their permanence and tenacity indicate their being an expression of varieties in national character) to rise *together* to a higher level of efficiency.

In proportion to the size of the country, is there not needed in England a greater variety of education than is needed elsewhere? We have to remember not only our own national needs, but the obligations which devolve upon us as the centre of the Empire. Ought not the United Kingdom to offer advantages in every grade of education which would attract students from every part of the Empire, and from all other countries, to devote one or two years at any rate to studies here? This imperial aspect of our educational system involves in itself a heavy national responsibility. But, in addition to this, we have to provide for the very diverse needs of our own people. Hence, education cannot but become one of the most important parts of our national equipment. But we in England cannot afford to put up with second-rate education. We need the very best educational system in the world. The very existence of the Empire depends on sea-power and school-power. However many different kinds of education we may find it necessary to maintain, each ought to be the best of its kind. The best schools turn out in the end to be the most profitable schools. It is far better to have a few schools which are really good than an immense number of schools which are indifferent. Wishy-washy education is dear at any price. In school-work, quality matters far more than quantity.

England has always stood for a broad view of education, and for the idea that the training of character and of the physical powers ought not to be sacrificed to purely intellectual discipline. The world is coming round to this opinion, but our tendency has been to neglect unduly the intellectual part of school-work. We are also in danger of paying too much attention to games. Moreover, "character" is a word which bears many different meanings, and the character, which the schools seek to form, ought to bear a definite relation to the tasks of modern life. We need, by means of our schools, to make boys adaptable to new circumstances, but at the same time capable of a wise stubbornness, and of sacrificing self to duty. More than ever is it necessary to develop individual intelligence, while also strengthening the consciousness of corporate responsibility.

The development of individual intelligence is largely a question of methods of teaching, but also of choice of studies. Educational efficiency of the best kind depends on having small classes; highly trained teachers; skilful methods of teaching; not too many subjects; the right order of subjects; the right choice of subjects (it is important that, as far as possible, the subjects chosen should

be such that the pupils will naturally keep up the study and use of them in later life); and an avoidance of hurry, of excessive competition, and of intellectual overstrain. It may be suggested that there is need for a number of carefully planned, carefully watched and carefully recorded educational experiments. Such might be carried out, under the best possible conditions, for a sufficient period of years, in a few selected schools in different parts of the country. Teachers and others might learn a great deal from visiting these experimental schools, and from discussing their methods and results. The keen study of methods by teachers is one of the best signs of educational progress. But the aim should be, not to enable the pupil to win a prize or a scholarship by a certain time, or to pass in some competitive examination (though I am far from meaning to imply that all competition is bad or that all examinations could be dispensed with), but to start him in the right way of learning things for himself, to arouse his interest in important subjects, and to give him a sure foundation of accurate and well digested knowledge. Large numbers of our secondary schools are worried by a superfluity of examinations. It would be far better to have some well defined intellectual aim for each school, and to allow the teachers to work steadily and quietly towards that aim. By regular and systematic inspection of all schools of every kind, the State could take sufficient guarantees for their educational efficiency, without imposing the test of State examinations, which in France and Germany have had the effect of unduly increasing the intellectual burden of the pupils at the cost of their opportunities for other kinds of development. Again, it is undesirable that any one pupil should be set to learn a little of a great number of subjects. Far better results are obtained by the more thorough study of a few subjects. Our motto should be *multum, non multa;* not premature specialisation, however, but an "animated moderation" in our curricula. But as different subjects are needed for different kinds of calling in life, it follows that we need many kinds of different curricula, varying in point of subject, but, as far as possible, equally well taught, and enjoying an equal measure of State recognition and encouragement. One of the chief difficulties however is thus to equate the values of very different curricula and of various forms of intellectual discipline. But such variety is absolutely essential to the well-being of an educational system. Hence it seems expedient to reduce to a minimum the number of posts offered by the State on the results of examinations in subjects so grouped or marked as specially to favour one type of education at the expense of others. At present, in France and Germany, and to some extent in England, there is a tendency to favour the linguistic disciplines in education at the expense of practical training, and thus to give, by means of the State examinations, a specially literary twist to higher education.

The professional training of teachers is a matter on which much of the efficiency of an educational system depends. But the

training ought to be of the best, both in point of general culture and of technical skill. Inadequate training may do almost as much harm as good, by setting up a wrong standard of efficiency. And teachers must be given much leisure if, in addition to doing their regular teaching work, they are to mix with their pupils out of school hours, and also to be required to pursue private studies on their own account. But all these things are necessary elements in the life of such teachers as we require for our schools. We do not want teachers only to meet their pupils in the class-rooms. At the same time, unless they are themselves constantly studying on their own account, their teaching will lose its freshness and its power of awakening keen intellectual interests. An over-driven staff of teachers, harried with work and unable to afford to spend money on books and travel, will have little influence on the intellectual life of their pupils. Nearly everything depends on the personality of the teachers, on their keenness of intellectual interest, on the freshness of their sympathies, on their using the best methods of teaching, on their constantly studying how to improve those methods, on their personal example, and on their friendly intimacy with their pupils. We cannot expect to enjoy the best that our teachers could give us if we underpay and overwork them. In too large a number of our English secondary schools the position of the assistant masters and mistresses urgently needs improvement.

The nation has a right to know far more than is known at present about the work and efficiency of all schools. We suffer from an extraordinary lack of statistical and other information about our secondary schools. No one knows how many pupils are learning Latin, or any other subject, in the great majority of secondary schools in England. No one knows how the subjects are taught, or the qualifications of the teachers, or the numbers of the teachers, or the numbers or the ages of the pupils. Supposing that it was desired to send a circular to every school in England claiming to be secondary in character, it could not be done, as there is not in existence any complete list of the postal-addresses of such schools. It seems desirable that the nation should know a good deal more about what after all is one line of national defence. There are a number of interesting educational experiments going on in England, but without any systematic effort being made to plan those experiments on a scientific basis, or to record their results with scientific accuracy, or to diffuse a knowledge of the experiments which fail. Yet the failures are often as instructive as success.

A number of very difficult questions are raised by the system of holding competitive examinations for scholarships at the public schools at thirteen or thirteen and a half years of age, and at the universities at eighteen to nineteen years of age. It is universally admitted that the system has had some good results, but there is a growing feeling that, under present conditions, it is doing more

harm than good. As at present organised, it cripples the power of the preparatory schools, and, to a less extent, of the public schools, to make much-needed experiments in curricula.

In arguing that much more could be done to bring the ordinary secondary school curricula into closer relation to the needs of later life. I am specially thinking of the average boy. The very clever or very industrious boy will get a good deal out of almost any curriculum, though of course much more out of a well-chosen curriculum than out of a poor one. But is there not need to do a great deal more to get the average boy on the side of work by really interesting him in what he is learning? Why should not more of our schools (including some of the highest rank) make manual skill and constructive work the chief (though, of course, not the only) features of their curriculum? Again, in many schools where the discipline is chiefly linguistic the better teaching of modern languages, of English literature, of geography, and of history, and (where it is not already given) philosophical yet practical instruction in the physical laws of Nature, would be welcome improvements, though the first results of such a change would perhaps be a disagreeable effervescence.

Better teaching at school would undoubtedly have a beneficial effect on our commerce (directly through the better equipment of our commercial travellers individually, but in a far higher degree, by the wider range of knowledge and interest which it would place at the command of our ordinary men of business), yet it is on other than purely commercial grounds that the chief arguments rest for the remodelling of many of our curricula. What is wanted is the union of a disciplined imagination with a balanced judgment. But this is a rare combination which cannot be suddenly produced to order. It cannot be achieved without long-continued labour on the part of all concerned. To produce such a result two things are indispensable: the best of teachers and the best of material. But where else in the world is there so good a chance of getting the best of both? And improvements in curricula would be a natural and necessary condition of educational success. We need a modern education in the humanities. Latin probably will be found to be, up to a certain point, desirable for the present as a disciplinary but subordinate element in the education of many of those who are to occupy high positions in the business world. But French and German are indispensable; and one advantage of learning French and German thoroughly and fluently at school is that a man can easily keep them up afterwards, and extend his knowledge of foreign life, language, and literature in the natural course of his daily professional reading. The best kinds of training for business life are not those which are prematurely specialised, but those which come as the crown of a liberal education. And nothing is more important than to insist on there being a strong ethical element in the education of

those who are destined to guide the commercial and industrial affairs of the country. Commercial credit and industrial peace rest ultimately on a moral basis, and both would be endangered by the effects of an education of which money-making was, tacitly or avowedly, the central aim. Commercial education should seek to inculcate what Cowley called "vertuous covetousness," and not, in Bacon's words, "the incessant and Sabbathless pursuit of a man's fortune"

"The problem for statesmen of this age is how to educate the masses; and literature and science cannot give the solution." So wrote, sixty years ago, one of the greatest teachers of his time. Literature and science are indeed, both of them, necessary elements in the solution; and at least equally necessary are the care and discipline of the bodily powers. But the only force which can fuse these elements into true education is a moral and spiritual influence, moderating and harmonising what would otherwise be extravagant and opposed; expressing itself in deeds rather than in words; teaching by example rather than by precept; and alone able to create the atmosphere in which heart and mind alike can find guidance and rest.

M. E. SADLER.

1901.

APPENDIX I.

Possibility of an Excess of Secondary Education.

The view that there may be in a country an excess of some prevailing type of secondary education has been put forward from time to time by statesmen and writers of high authority. A few of these expressions of opinion are quoted below. It will be seen that some of the arguments, which are employed in the course of educational discussions (particularly in France) at the present time, have been used at many earlier periods, especially during those of rapid social change. It may be pointed out in passing that England has been "two-minded" on the subject of providing extensive facilities for secondary education. Broadly speaking, our educational history is the record of an evenly-balanced struggle between (1) those whose idea of "national education" has been somewhat narrowly limited to a fervent belief in the moral as well as the intellectual efficacy of a system of well-organised day-schools, and (2) those who have clung to a wider, though less easily defined, belief that "national education," in any true sense of the word, consists in the joint and often secret operation of many kinds of influence, permeating the heart as well as the mind of the nation, and proceeding from historic institutions, spiritual traditions, ancient and familiar habits of life, intimacy with Nature, social relationships, personal loyalties, economic activities, daring adventure, and free discussion. Those who incline to the first view have, more frequently than the best of their opponents, been unconsciously one-sided in their conception of what the whole nation ought to be made to think and how it ought to be made to behave. Those, on the contrary, who have inclined to the second view have often been lacking in the pertinacity which comes from rather narrow convictions, and have still more often been inarticulate and unable to express in words, either to themselves or to other people, what they really felt. The opinions quoted below, so far as they have been expressed by Englishmen, have been chosen in order to illustrate an educational point of view which, though singularly persistent and politically influential throughout the last three hundred years of our history, has not yet received at the hands of writers on education the attention which it deserves.

(1) The following passage was written by the famous schoolmaster, Mulcaster, with regard to English education in 1581:—

" . . . There must be a *restraint*, and all may not passe on to learning which throng thitherward, bycause of the inconueniences, which may ensue, by want of preferment for such a multitude, and by defeating other trades of their necessarie trauellours. Our next labour therefore must be, how to handle this *restraint*, that the tide overflow not the common, with to great a spring of bookish people, if ye crie come who will, or ring out all in. Euerie one desireth to have his childe learned: the reason is, for that how hardly soeuer either *fortune* frowne, or *casualtie* chastice, yet *learning* hath some strength to shore vp the person, bycause it is incorporate in the person, till the soule dislodge, neither lyeth it so open for mischaunce to mangle, in any degree, as forren and fortunes *patrimonie* doth. But though euerie parent be thus affected toward his owne child, as nature leades him to wish his owne best, yet for all that euerie parent must beare in memorie that he is more bound to his country, then to his child, as his child must renounce him in countermatch with his countrie. And that countrie which claymeth this prerogatiue of the father aboue the child, and of the child aboue the father, as it maintained the father eare he was

a father, and will maintaine the child, when he is without a father: so generally it prouideth for all, as it doth require a dutie aboue all. And therefore parentes in disposing of their children may vpon good warrant surrender their interest to the generall consideration of their common countrie, and thinke that it is not best to haue their children bookish, notwithstanding their owne desire, be it neuer so earnestly bent: if their countrie say either they shall serue in this trade, without the booke: or if shee say I may not allow any more booke men without my to much trouble. I pray thee good parent haue pacience, and appoint some other course for thy childe, there be many good meanes to liue by, besides the booke, and I wilbe thy childes friend, if thou will fit in some order for me. This verie consideration of the countrie, vttered with so milde a speach, spoken by her that is able to performe it, may moue the reasonable parent, to yealde to her desire as best, as she can tell the headstrong in plaine termes, that he shall yeelde perforce, if he will not by entreatie, for priuate affection though supported by reason of strength whatsoeuer, must either voluntarily bend, or forcibly breake, when the common good yeeldeth to the contrary side.

"Seeing therefore the disposition of wittes according to the proportion of ech state is resigned ouer to the countrie: and she sayth all may not be set to schole, bycause ech trade must be furnished, to performe all duties belonging to all parts. . . . ." *

(2) The following passage is part of Lord Bacon's "*Advice to the King, touching Mr. Sutton's Estate*" (*i.e.*, the Charterhouse), written early in the seventeenth century.

"Concerning the advancement of learning, I do subscribe to the opinion of one of the wisest and greatest men of your kingdom: That for grammar schools there are already too many, and therefore no providence to add where there is excess; for the great number of schools which are in your Highness's realm, doth cause a want, and doth cause likewise an overflow; both of them inconvenient and one of them dangerous. For by means thereof they find want in the country and towns, both of servants for husbandry, and apprentices for trade: and on the other side, there being more scholars bred than the State can prefer or employ; and the active part of that life not bearing a proportion to the preparative, it must needs fall out that many persons will be bred unfit for other vocations and unprofitable for that in which they are brought up; which fills the realm full of indigent, idle, and wanton people, which are but *materia rerum novarum*."†

[Bacon expresses the wish that Mr. Sutton's benefaction should be devoted to the endowment of university studies, instead of secondary schools.]

(3) In 1640 Cardinal Richelieu maintained that France was over-supplied with secondary schools, and that a limit should be placed on their number. He argued that a well-ordered State needs much more technical than literary education; that trade enriches a nation; but that trade is neglected by a nation which is absorbed in literary interests. The following passage from Cardinal Richelieu's *Testament politique* was quoted by M. Hanotaux to the French Parliamentary Commission on Secondary Education.‡

"Le commerce excessif des lettres bannirait absolument celui de la marchandise qui comble les États de richesses, ruinerait l'agriculture, vraie mère nourrice des peuples et déserterait en peu de temps la pépinière des soldats, qui s'élèvent plutôt dans la rudesse de l'ignorance que dans la

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* Mulcaster's *Positions*, 1581. (Quick's edition, 1888, chap. 37, pp. 142-43.)

† Basil Montagu's edition of *The Works of Francis Bacon* (1826), Vol. V. p. 380

‡ *Enquête sur l'Enseignement Secondaire.* Procès-verbaux. Vol. II. 1890, pp. 548-49.

politesse des sciences; enfin il rèmplirait la France de chicaneurs, p propres à ruiner les familles particulières et à troubler le repos public qu'à procurer aucun bien aux États.

"Si les lettres étaient profanées à toutes sortes d'esprits, on verrait plus de gens capables de former des doutes que de les résoudre et beaucoup seroient plus propres à s'opposer aux vérités qu'à les défendre.

"C'est en cette considération que les politiques veulent, en un État bien réglé, *plus de maîtres ès Arts Mécaniques, que de maîtres ès Arts Libéraux pour enseigner les lettres.*

"J'ai souvent vu, pour la même raison, le Cardinal du Perron souhaiter ardemment la suppression d'une partie des collèges de ce royaume; il désirait en faire établir quatre ou cinq célèbres dans Paris, et deux dans chaque ville métropolitaine des provinces.

"Il ajoutait, à toutes les considérations que j'ai rapportées, qu'il était impossible qu'on pût trouver en chaque siècle assez de gens savants pour fournir une grande multitude de collèges; au lieu que, si on se contentait d'en avoir un nombre modéré, on les pourrait remplir de dignes sujets, qui conserveraient le feu du temple en sa pureté et qui transmettraient, par succession non interrompue, les sciences en leur perfection.

"Il me semble en effet, lorsque je considère le grand nombre de gens qui font profession d'enseigner les letters et la multitude des enfants que l'on fait instruire, que je vois un nombre infini de malades qui, n'ayant d'autre but que de boire de l'eau pure et claire pour leur guérison, sont pressés d'une soif si déréglée que, recevant indifféremment toutes celles qui leur sont présentées, la plus grande partie en boit d'impure, et souvent en des vaisseaux empoisonnés, ce qui augmente leur soif et leur mal, au lieu de soulager l'un et l'autre.

"Enfin de ce grand nombre de collèges, indifféremment établis en tous lieux, il arrive deux maux: l'un que je viens de présenter par la médiocre capacité de ceux qu'on oblige à enseigner, ne pouvant trouver assez de sujets éminents pour remplir les chaires; l'autre par le peu de dispositions naturelles qu'ont aux lettres beaucoup de ceux que leurs parents font étudier, à cause de la commodité qu'ils en trouvent, sans que la portée de leur esprit soit examinée, d'où vient que presque tous ceux qui étudient demeurent avec une médiocre teinture des lettres, les uns pour n'être pas capables de plus, les autres pour être mal instruits.

"Quoique ce mal soit de grande conséquence, le remède en est aisé, puisqu'il ne faut autre chose que réduire les collèges des villes, qui ne sont pas métropolitaines, à deux ou trois classes suffisantes pour tirer la jeunesse d'une ignorance grossière, nuisible à ceux mêmes qui destinent leur vie aux armes ou qui la veulent employer au trafic.

"Par ce moyen, auparavant que des enfants soient déterminés à aucune condition, deux ou trois ans feront connaître la portée de leur esprit; ensuite de quoi, les bons qui seront envoyés aux grandes villes réussiront d'autant mieux qu'ils auront le génie plus propre aux lettres et qu'ils seront instruits de meilleure main."

(4) There was great division of opinion on the subject in England during the middle part of the seventeenth century. While some, especially on the Puritan side, strenuously advocated the establishment of more schools (on this point, see Professor Foster Watson's article on *The State and Education during the Commonwealth*, in the "English Historical Review" for January, 1900), others, to whom Puritanical extremes had proved repugnant, maintained that great care was necessary in order to guard against an undue enlargement of the more literary callings. Thus Francis Osborne, writing in 1656, remarked, with reference to "free and populous schools," that he thought "the charity of our forefathers in nothing so much mistaken as in the vast sums they employed in these (more seeming than real) pious uses, which now much redounds to the prejudice of the plough and the more beneficial manufactures of our nation."* This remark applies

* *Advice to a Son*; edited by Judge Parry (London: Nutt, 1896), p. 10.

to schools which were partly elementary, but carried forward many of the pupils to a higher stage in education. Christopher Wase, in his *Considerations concerning Free Schools as settled in England*, published in 1678, admits that "there is an opinion commonly received that the scholars of England are over-proportioned to the preferments for lettered persons," though he temperately argues against any discouragement of higher education, and dwells on England's great need of better provision for the support of learning. The opinions of George Savile, Marquis of Halifax, on the subject of national education are thus described in "Saviliana." The passage appears to refer to Lord Halifax's opinions about the year 1674. "Saviliana" was written, it is thought, by a clergyman who had been chaplain to Lord Halifax. "Another great cause of the decay of vertue, his Lordship attributed to the wrong education of youth. His Lordship would have had schoolmasters to be old and grave, taken from all orders of men, lords for young noblemen, gentlemen for the younger gentry, and so on in lower degrees . . . the place to be looked upon as one of the most honourable; without any salary at all from schoolboys, only with a stipend from the Government when the men would take it: their chief care being that the youths should be punisht for immorality more than for want of proficiency in learning; and that all should be taught to read and to write and to cast accounts, but not any brought up to languages and sciences except such as had parts that would answer; and that shoals of such as had not, should be released from study, and timely sent home, to make artificers and soldiers. It being his Lordship's opinion that nothing distresses the commonwealth so much as half-learned men, and that downright quiet ignorance is much to be preferred before restless conceited knowledge."*

(5) In 1763, La Chalotais, the Procureur-Général of the Parliament of Brittany, published his *Essai de l'éducation nationale ou plan d'études pour la jeunesse*, a work which had a great influence on the educational thought of the time. In this essay, La Chalotais raised the question whether there was not too much literary education in France, and too many secondary schools. "Even the common people want to undertake higher studies," he wrote. "Labourers and artisans send their boys to secondary schools, and when the latter have learnt just enough to make them despise the calling of their parents, they take to the Church or the Law, and often became a harmful element in society." His conclusion was that it was more to the advantage of the State to have a few very efficient secondary schools each with a prolonged course of studies, than to have a much larger number of institutions doing less efficient work. "The nation has been seized by a mania for literary cultivation."†

(6) Frederick the Great said, in an official memorandum to his Minister, von Zedlitz, in 1779:—"Out in the country it is enough for boys to learn to read and write a little. If they know too much, they are off to the towns and want to become clerks and such like."‡

(7) Professor Huxley wrote in 1892 as follows:—

"As to intermediate education, I have never favoured the notion of State intervention in this direction.

"I think there are only two valid grounds for State meddling with education: the one, the danger to the community which arises from dense ignorance; the other, the advantage to the community of giving capable men the chance of utilising their capacity.

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* Foxcroft. *Life of Halifax.* Vol. i., p. 115.

† F. Buisson, *Dictionnaire de Pédagogie.* (Hachette, 1877.) Part I. Vol. II. article *La Chalotais.* *Cf.* also Emile Bourgeois, *L'Enseignement secondaire selon le vœu de la France* (Paris, 1901), pp. 111 *et seq.*

‡ Paulsen, *Geschichte des gelehrten Unterrichts.* Vol. II. p. 68.

"The first furnishes the justification for compulsory elementary education. If a child is taught reading, writing, drawing, and handiwork of some kind; the elements of mathematics, physics, and history, and I should add of political economy and geography, books will furnish him with everything he can possibly need to make him a competent citizen in any rank of life.

"If with such a start, he has not the capacity to get all he needs out of books, let him stop where he is. Blow him up with intermediate education as much as you like, you will only do the fellow a mischief, and lift him into a place for which he has no real qualification. People never will recollect that mere learning and mere cleverness are of next to no value in life, while energy and intellectual grip, the things that are inborn and cannot be taught, are everything."*

All true education has a double purpose, namely (1), the development of the moral personality, physical powers and intellectual gifts of the individual as individual, and (2) the fitting of the pupil skilfully to perform the duties of some special calling in life, and worthily to discharge the tasks likely to fall on him or her as a member of the community. The first is pre-eminently the "liberal" aim in education; the second, the "technical." The two motives are different, but the two processes are necessarily intermixed. The motives are different, but the subject-matter of the education may by accident be the same. For example, Latin may be taught as one of the instruments of a liberal education, or it may be taught for a purely technical aim. All through the period of education the two processes are concurrent, though the relative importance of the two aims depends on the stage of training which the pupil has reached. In early childhood the "technical" aim is very unimportant as compared with the "liberal" aim, though there is a constant tendency to depress the "liberal" aim in the supposed interests of the "technical." As the time draws nearer for the pupil to enter on some practical calling in life (an age which, under existing conditions of society, varies widely in different cases), the demands of the "technical" side of education increase in urgency and relative importance, but they should never be allowed to obliterate the demands of the "liberal" side. The two claims are always, though in varying measure, concurrent. The history of education during the last three centuries shows a steady growth of the conviction (1) that the amount of "liberal" education given to every child and every citizen must be largely increased, and the period during which it is given prolonged; and (2) that, in view of the ever-growing need for increased skill in all of the callings of life, everyone ought to have some measure of technical education, given in school or workshop or, preferably, in both. But, through the increasing complexity of life and the sub-division of different kinds of labour, new kinds of technical education are constantly becoming necessary. Each new kind of technical education, however, must be intermixed with the necessary amount of liberal education. Nor do the older types of education remain in all ways appropriate to the new needs. These older types of secondary and higher education, however, consist of two elements: they are partly "technical" and partly "liberal." In so far as the former becomes obsolete, or is being given to more pupils than are necessary to recruit the gaps in the given calling, there arise new needs for new types of secondary education, in each of which in turn the maintenance of the "liberal" element will be essential, while the "technical" element will be new in order to meet the new needs of the time. It is selfish obscurantism to object to "liberal" education being given to all, without regard to their station or calling. But hardly less mischievous, though much better inten-

* *Life and Letters of T. H. Huxley.* (Macmillan, 1900.) Vol. II. pp. 319–20.

tioned, is the tendency to give exactly the same kind of secondary and higher education to everybody without regard to the actual needs of their calling, *i.e.*, to ignore the necessity for varying the "technical," while safeguarding the "liberal," element in secondary education. The true aim is to retain for *all* the best of the "liberal" elements in education, but also to give to each that kind of technical preparation which, in view of the rising standard of skill, is requisite to efficiency and success in the calling which the pupil intends or hopes to follow after leaving school.

APPENDIX II.

THE ROYAL DECREE ON SECONDARY EDUCATION IN PRUSSIA, NOVEMBER 26, 1900.

"Whereas I have considered the report of the 20th of the present month, it is my pleasure that the reform of the higher schools, initiated by me in 1892, be carried further in the following directions:—

"1. With reference to the question of privileges, the principle must be that the *Gymnasium*, *Realgymnasium*, and *Oberrealschule* are to be considered as of equal value from the point of view of general intellectual culture, which it is only necessary to supplement in so far as for many lines of study and professional pursuits particular branches of knowledge are required which do not enter into the curriculum of each institution, or not to the requisite degree. Consequently, steps are to be taken to extend the privileges of institutions with a non-classical curriculum. This is the best means of raising the repute and increasing the attendance at these institutions, and of effecting the wider spread of modern and practical subjects.

"2. In thus acknowledging the equality of the three types of higher institutions, it will be possible more thoroughly to strengthen the special characteristics of each type. In this connexion I shall offer no objection to an increase in the number of hours devoted to Latin in the *Gymnasium* and *Realgymnasium*. But I am particularly anxious that, in view of the special importance that now attaches to a knowledge of English, this language should receive more attention at the *Gymnasium*. Therefore, side by side with Greek, English is everywhere to be an alternative subject up to IIB., and, moreover, in the three top classes, where local conditions render it desirable, English is to replace French as an obligatory subject, while the latter language is to be retained as an optional one. Also it appears to be advisable that in the curriculum of the *Oberrealschule* (which admits of an extension) geography should receive a larger measure of attention.

"3. Since 1892 undeniable progress has been made in the economy of instruction in many branches. More must still be achieved. Mindful of the old adage, 'Multum, non multa,' the directors will be constrained to pay increased attention to see that equally high attainments are not demanded in all branches, but the most important among them according to the nature of the institution are emphasised and extended. In the teaching of Greek it is specially important to do away with all unnecessary details of grammar, and chiefly to keep in mind that, side by side with the æsthetic point of view, a consideration of the relations between the ancient world and modern culture should receive its proper meed of attention. In modern languages special efforts must be made to secure skill in speaking the foreign idiom, and a ready comprehension of the most popular authors. In history two deficiencies make themselves felt—the neglect of important

portions of ancient history, and the too scant consideration of German history of the nineteenth century, with all its wealth of stirring recollections and great achievements for our native country. In geography, both in the *Gymnasium* and in the *Realgymnasium*, it is to be desired that the instruction be placed in the hands of teachers who have made a special study of this branch. In the teaching of natural science a larger measure of time must be devoted to observation and experimental work, and frequent excursions must enliven the instruction; in teaching chemistry and physics the applied and technical side of the subject must not be neglected. In drawing (where, moreover, the capacity to reproduce the results of observations in rapid sketches is to be encouraged) efforts are to be made at the *Gymnasium* to induce those pupils who intend later on to take up the study of technology, natural science, mathematics, or medicine to take proper advantage of the optional instruction in drawing. Besides the physical exercises, which are to be more extensively introduced, greater attention is to be paid in drawing up the time-table to matters of hygiene, more especially by means of a suitable arrangement of the different lessons, and by considerably increasing the duration of the intervals, which up till now have been too short.

"4. As the *Abschlussprüfung* has not fulfilled the expectations that were formed of it, and, in particular, instead of diminishing the rush of students to the university, has rather augmented it, it is to be abolished as soon as possible.

"5. The establishment of schools following the Altona and Frankfurt curricula has on the whole proved beneficial to the places where they exist. Through the fact that the earlier stages of their curriculum are the same as those of the non-classical schools, they constitute no inconsiderable social gain. It is my wish not only that the experiment should be continued in a manner appropriate to the end in view, but that, where the given conditions prevail, attempts should be made on a more extended basis.

"I cherish the hope that the measures thus to be introduced, for the realisation of which I count upon the ever-constant sense of duty and intelligent devotion of the teachers, will conduce to the advantage of our higher schools, and contribute their share towards lessening the antagonism between the representatives of the classical and modern ideas of education, and succeed in bringing about a conciliatory adjustment of their differences.

(Signed) "WILHELM R

"Given at Kiel, November 26th, 1900,
on board H.M.S. 'Kaiser Wilhelm II.'"

[In the above translation I have availed myself, in the main, of the excellent rendering published in the *Journal of Education*, February, 1901.]

APPENDIX III.

The New Time Tables for Higher (i.e. Secondary) Schools in Prussia, Authorised April 3rd, 1901.

[Published in the *Centralblatt für die gesamte Unterrichts-Verwaltung in Preussen*, May, 1901.]

A.—Time Table for Gymnasien (Classical Schools with Nine-Years' Course), 1901.

—	VI.	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.	As compared with the Time Table of 1892.
Religion	3	2	2	2	2	2	2	2	2	Same.
Mother Tongue and Historical Narration	3 / 1 } 4	2 / 1 } 3	3	2	2	3	3	3	3	Same.
Latin	8	8	8	8	8	7	7	7	7	One weekly lesson more in IV. upwards, except in IIB. Permission to transfer some of the Latin time to Greek in IIA., IB., and IA. is new.
Greek	—	—	—	6	6	6	6	6	6	
French	—	—	4	2	2	3	3	3	3	One lesson per week less in IIIB. and IIIA. One lesson per week more in IIA., IB., and IA.
History	—	—	2	2	2	2	3	3	3	History loses time in VI. and V.
Geography	2	2	2	1	1	1	—	—	—	Geography gains time in VI. and V.
Mathematics	4	4	4	3	3	4	4	4	4	Same, except that the permission to alter the distribution between Mathematics and Natural Science in IIB. upwards is new.
Natural Science	2	2	2	2	2	2	2	2	2	
Writing	2	2	—	—	—	—	—	—	—	Same.
Drawing	—	2	2	2	2	—	—	—	—	Same.
Total	25	25	29	30	30	30	30	30	30	One lesson more per week in IV. Two lessons more per week in IIA., IB., and IA.
Physical Training	3	3	3	3	3	3	3	3	3	
Singing	2	2	—	—	—	—	—	—	—	

The classes rise from VI. to IA.

The Arabic figures indicate the number of weekly lessons in school in each subject.

Each lesson lasts fifty minutes. The above table does not include home-work.

The brackets indicate that the number of lessons may, if desired, be redistributed from time to time between the subjects enclosed in the bracket.

Optional.—Drawing (two lessons weekly from IIB. upwards). English (two lessons weekly) or Hebrew (two lessons weekly) from IIB. upwards. English (three lessons weekly) may be substituted for French (three hours weekly) in the three highest classes, French in that case taking the place of English as an optional subject (two lessons).

Scholars whose handwriting is bad have writing lessons in IV., IIIB., and IIIA.

B.—TIME TABLE FOR REALGYMNASIEN (SEMI-CLASSICAL SCHOOLS WITH NINE-YEARS' COURSE), 1901.

—	VI.	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.	As compared with the Time Table of 1892.
Religion	3	2	2	2	2	2	2	2	2	Same.
Mother Tongue and Historical Narration	3 } 4 1	2 } 3 1	3	3	3	3	3	3	3	Same.
Latin	8	8	7	5	5	4	4	4	4	One lesson per week more in IIIB. upwards.
French	—	—	5	4	4	4	4	4	4	One lesson per week less in IIIB., and IIIA.
English	—	—	—	3	3	3	3	3	3	Same.
History	—	—	2	2	2	2	3	3	3	Geography gains what History loses in VI. and V.
Geography	2	2	2	2	2	1	—	—	—	
Mathematics	4	4	4	5	5	5	5	5	5	Same.
Natural Science	2	2	2	2	2	4	5	5	5	Loses one lesson a week in IIB.
Writing	2	2	—	—	—	—	—	—	—	Same.
Drawing	—	2	2	2	2	2	2	2	2	Same.
Total	25	25	29	30	30	30	31	31	31	One lesson per week more in IIA., IB., and IA.
Physical Training	3	3	3	3	3	3	3	3	3	
Singing	2	2	—	—	—	—	—	—	—	

The classes rise from VI. to IA.

The Arabic figures indicate the number of weekly lessons in school in each subject. Each lesson lasts fifty minutes. The above table does not include home-work.

The brackets indicate that the number of lessons may, if desired, be redistributed from time to time between the subjects enclosed in the bracket.

OPTIONAL.—Linear Drawing from IIIA. upwards, two lessons weekly.

Scholars whose handwriting is bad have writing lessons in IV., IIIB., and IIIA.

C.—TIME TABLE FOR OBERREALSCHULEN (NON-CLASSICAL SCHOOLS WITH NINE-YEARS' COURSE), 1901.

—	VI.	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.	As compared with the Time Table of 1892.
Religion	3	2	2	2	2	2	2	2	2	Same.
Mother Tongue and Historical Narration	4 } 5 1	3 } 4 1	4	3	3	3	4	4	4	Same.
French	6	6	6	6	6	5 }	4 }	4 }	4 }	The freedom to redistribute hours between French and English in IIB. upwards is new.
English	—	—	—	5	4	4 }	4 }	4 }	4 }	
History	—	—	3	2	2	2	3	3	3	History loses what Geography gains in VI. or V. History gains a lesson per week in IV. Geography loses a lesson per week in IIB History and Geography gain between them one lesson per week in IIA. upwards.
Geography	2	2	2	2	2	1	1	1	1	
Mathematics	5	5	6	6	5	5	5	5	5	Same.
Natural Science	2	2	2	2	4	6	6	6	6	Same.
Writing	2	2	2	—	—	—	—	—	—	Same.
Freehand Drawing	—	2	2	2	2	2	2	2	2	Same.
Total	25	25	29	30	30	30	31	31	31	One lesson per week more in IV. and in IIA. upwards.
Physical Training	3	3	3	3	3	3	3	3	3	
Singing	2	2	—	—	—	—	—	—	—	

The classes rise from VI. to IA.

The Arabic figures indicate the number of weekly lessons in school in each subject. Each lesson lasts fifty minutes. The above table does not include home-work.

The brackets indicate that the number of lessons may, if desired, be redistributed from time to time between the subjects enclosed in the bracket.

OPTIONAL.—Linear Drawing from IIIA. upwards (two lessons per week).

Scholars whose handwriting is bad have writing lessons in IV.

D.—TIME-TABLE FOR REALSCHULEN (NON-CLASSICAL SCHOOLS WITH SIX-YEARS' COURSE), 1901.

The Time-table for these schools is the same as that for VI. to IIB., inclusive, of the foregoing Time-table for Oberrealschulen.

But, according to local needs, the State Inspecting Boards may allow, in classes VI. to II. inclusive, more instruction in the Mother Tongue at the expense of Mathematics or of French.

The total number of weekly lessons, however, must not be increased in the case of any class.

DI. — ALTERNATIVE TIME TABLE FOR REALSCHULEN (NON-CLASSICAL SCHOOLS WITH SIX-YEARS' COURSE), 1901.

—	VI.	V.	IV.	III.	II	I.	As compared with the Time Table of 1892.
Religion	3	2	2	2	2	2	Same.
Mother Tongue and Historical Narration	5 / 1 } 6	4 / 1 } 5	5	5	4	4	One lesson per week more in I.
French	6	6	6	5	4	4	Same.
English	—	—	—	5	4	4	Same.
History	—	—	3	2	2	2	History loses what Geography gains in VI. and V. Geography gains one lesson per week in II. History gains one lesson per week in IV.
Geography	2	2	2	2	2	2	
Mathematics	4	4	5	5	5	5	Same.
Natural Science	2	2	2	2	5	5	Same.
Writing	2	2	2	—	—	—	Same.
Freehand Drawing	—	2	2	2	2	2	Same.
Total	25	25	29	30	30	30	
Physical Training	3	3	3	3	3	3	
Singing	2	2	—	—	—	—	

The classes rise upwards from VI. to I. The classes named above, III., II., and I., correspond respectively to IIIB., IIIA., and IIA. of the nine-year schools.

The Arabic figures indicate the number of weekly lessons in school in each subject. Each lesson lasts fifty minutes. The above table does not include home-work.

The brackets indicate that the number of lessons may, if desired, be redistributed from time to time between the subjects enclosed in the brackets.

OPTIONAL.—Linear Drawing from III. upwards.

Scholars whose handwriting is bad have writing lessons in III

APPENDIX IV.

The following are some of the special types of curricula approved by the Prussian Education Department:—

A.—The Frankfurt Curricula.

—	Common Foundation of Non-Classical Education (9 to 12 years of age).			(Alternatives.) The Classical School (Gymnasium).						(Alternatives.) The Semi-Classical School (Real-gymnasium).					
—	VI	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.
Religion	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mother Tongue and Historical Narration	5	4	4	3	3	3	3	3	3	3	3	3	3	3	3
Latin	—	—	—	10	10	8	8	8	8	8	8	6	6	6	6
Greek	—	—	—	—	—	8	8	8	8	—	—	—	—	—	—
French	6	6	6	2	2	2	2	2	2	4	4	3	3	3	3
English	—	—	—	—	—	—	—	—	—	—	—	6	4	4	4
History and Geography	2 Geo	2 Geo	5	3	3	2	2	2	3	3	3	3	3	3	3
Mathematics	5	5	5	4	4	3	4	4	3	4	4	4	5	5	5
Natural History	2	2	2	2	2	—	—	—	—	2	2	—	—	—	—
Physics	—	—	—	—	—	2	2	2	2	—	—	3	2	2	2
Chemistry	—	—	—	—	—	—	—	—	—	—	—	—	2	2	2
Writing	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—
Drawing	—	2	2	2	2	—	—	—	—	2	2	2	2	2	2
Total	25	25	26	28	28	30	31	31	31	28	28	32	32	32	32

Physical Training, three lessons weekly in all classes.

Singing, various.

Optional instruction in Drawing (Gymnasium) in II. and I. (two lessons a week).

Optional instruction in English (Gymnasium) in IIA. and IB. (two lessons a week).

Optional instruction in Hebrew (Gymnasium) in IIA. and IB. (two lessons a week).

The Arabic figures in the above table show the number of weekly lessons in school in each subject. Each lesson lasts fifty minutes. The table does not include home work.

The classes rise from VI. to IA.

B.—TIME TABLE OF THE OBERREALSCHULE WITH REFORM-REALGYMNASIUM AT KIEL (1901).

—	Common Foundation of Non-Classical Education (9 to 12 years of age).			(Alternatives.)											
				The Non-Classical School (Oberrealschule).						The Semi-Classical School (Reform-Realgymnasium).					
—	VI.	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.
Religion	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mother Tongue	5	4	4	3	3	3	4	4	4	3	3	3	3	3	3
Latin	—	—	—	—	—	—	—	—	—	8	8	6	6	6	6
French	6	6	6	6	6	5	4	4	4	4	4	3	3	3	3
English	—	—	—	5	4	4	4	4	4	—	—	6	4	4	4
History and Geography	2	2	5	4	4	3	4	4	4	4	3	3	3	3	3
Mathematics	5	5	6	6	5	5	5	5	5	4	4	4	5	5	5
Natural History	2	2	2	2	2	2	—	—	—	3	2	—	—	—	—
Physics	—	—	—	—	2	2	3	3	3	—	2	2	2	2	2
Chemistry and Mineralogy	—	—	—	—	—	2	3	3	3	—	—	—	2	2	2
Writing	2	2	2	—	—	—	—	—	—	—	—	—	—	—	—
Drawing (Free-hand)	—	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total	25	25	29	30	30	30	31	31	31	32	30	31	31	32	32
Physical Training	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Singing	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

OPTIONAL.—Linear Drawing (two lessons weekly) in IIIA. upwards, both in Oberrealschule and Realgymnasium.

The classes rise from VI. to IA. The Arabic figures show the number of weekly lessons in school in each subject. The table does not include home-work.

In IIIB. and IIIA. scholars whose handwriting is bad have writing lessons.

—TIME-TABLE OF THE BERLIN REALSCHULEN (NON-CLASSICAL SCHOOLS WITH SIX-YEARS' COURSE), 1901.

[*See* SPECIAL REPORTS ON EDUCATIONAL SUBJECTS, Vol. I. p. 373 *et seq.* The special characteristic of this Time-table is that the first foreign language is put off till IV. (*i.e.*, till eleven years of age), and the second foreign language till II. (*i.e.*, till thirteen years of age). This was done in order to enable boys who should enter the secondary school from the elementary school at eleven years of age to begin their first foreign language with their fellow scholars, instead of (as would be the case under the ordinary curriculum) finding themselves two years behind in their study of that language. But it is understood that many of the Berlin secondary school masters feel that French and English ought each to begin one year earlier than is at present allowed by this Time-table.]

—	VI.	V.	IV.	III.	II.	I.
Religion	3	2	2	2	2	2
Mother Tongue	7	7	4	4	3	3
French	—	—	8	8	6	6
English	—	—	—	—	6	6
History	1	1	2	3	2	2
Geography	2	3	2	1	1	1
Mathematics	5	6	6	6	5	5
Natural History	2	2	2	2	2	—
Physics	—	—	—	2	2	2
Chemistry & Mineralogy	—	—	—	—	—	2
Writing	3	2	—	—	—	—
Drawing	2	2	2	2	3	3
Total	25	25	28	30	32	32
Physical Exercises	3	3	3	3	3	3
Singing	2	2	2	2	2	2

The classes rise from VI. to I. Classes III., II., and I. above correspond to IIIB., IIIA., and IIB. respectively in a nine-years' school. The Arabic figures show the number of weekly lessons in school in each subject. Home-work not shown.

APPENDIX V.

Limitations on Freedom in Teaching Contemporary French History in French Public Secondary Schools.

The following decree was issued by the French Minister of Public Instruction in March, 1901. It forbids allusions, in the historical lessons in secondary schools, to any facts in French internal politics since 1875:—

Monsieur le recteur,

Mon attention a été récemment appelée sur certaines difficultés auxquelles pouvait donner lieu l'application du programme d'histoire contemporaine dans les lycées et collèges.

J'ai cru devoir consulter à ce sujet la section permanente du conseil supérieur de l'instruction publique.

La section permanente a été d'avis que, en ce qui concerne l'histoire intérieure de la France, le cours doit s'arrêter, conformément, d'ailleurs, aux dispositions du chapitre II du titre III dudit programme, au vote des lois constitutionnelles de 1875.

Par suite, dans ses leçons sur les sujets indiqués au titre IV—Développement ou transformation des principes de 1789—le professeur s'abstiendra de faire intervenir les faits de politique intérieure postérieurs à la date de 1875.

Vous voudrez bien inviter MM. les professeurs à conformer désormais leur enseignement à cette interprétation.

Vous donnerez, en même temps, des instructions pour qu'il ne soit mis entre les mains des élèves, comme livres scolaires ou comme livres de bibliothèque à leur usage, que des ouvrages conformes à ce programme. Les ouvrages qui contiendraient l'histoire des événements relatifs à la politique intérieure qui se sont produits en France depuis 1875 ne devront plus être laissés à la disposition des élèves.

Recevez, etc. Georges Leygues.

This decree was the subject of an interesting article in the *Temps* of March 8th, 1901. The writer of the article stated that the distrust felt by many parents for the political tendencies of some of the masters in secondary schools has been one of the causes of the crisis in French secondary education. He argued that, however much a teacher may desire to be impartial and scientific in his treatment of history, he cannot wholly eliminate personal bias or preconception from his treatment of political facts which have occurred within the last quarter of a century. Nor, he maintained, can facts so recent have passed into the calmer sphere of scientific history. Might not the writer, however, have gone further than this, and have maintained that, even in regard to periods far more remote in point of time from our own day, there are opportunities for unconscious partisanship in historical teaching? Everything depends on the intellectual fairness and open-mindedness and tact of the teacher. Where national opinion on political and ecclesiastical principle has become polarised, the best kind of teaching of history becomes (so far as the common schools are concerned) frequently impossible, owing to suspicions and lack of mutual confidence. Of course, under some conditions the majority of the nation, or the ruling power, may insist on the "historical" lessons in the schools being used as a channel for imparting a particular view of controverted points. But this process corresponds to what used to be called in England "tuning the pulpits." It opens the door to hypocrisy and intellectual dishonesty, and sterilises much that is best in the teaching of history. Freedom is the breath of life to education. Schools cannot do their best work under a sort of martial law. Where circumstances permit, an earnest teacher should be allowed to speak his full mind (of course, with due regard to the consciences

of the pupils and to the possible collateral effect of his teaching on the general welfare of the school, and on the confidence felt in it by the parents of the pupils) about the moral and political issues which necessarily underlie the historical narrative of the developments of great events. Is not it better that teachers should "speak (what they believe to be) the truth in love" than mask their real beliefs under an appearance of indifferentism? Are not an attitude of mind, a reasoned conviction, a clear belief in the essential rightness of some principles and the essential wrongness of others, necessarily involved in any effective teaching of history to children of almost any age? Not that the teacher should preach, but that the children should be put in a position to understand (so far as their age permits) why the struggles of a given period were morally and politically momentous. Without this, will not many of the pupils lose one of the chief benefits of historical study—namely, warning against certain perils? Dr. Arnold's definition of the moral and practical aim of historical teaching was as follows:—

"Let the pupil be taught to analyse the subject . . . . *to trace back institutions, civil and religious, to their origin;* to explore the elements of the national character . . . to observe how the morals and mind of the people have been subject to a succession of influences, some accidental, others regular; to see and remember what critical seasons of improvement have been neglected, what besetting evils have been wantonly aggravated by wickedness or folly. *In short, the pupil may be furnished, as it were, with certain formulæ, which shall enable him to read all history beneficially; which shall teach him what to look for in it, how to judge it, and how to apply it.*"*

The teacher needs to exercise great tact, sympathy, and fairness in his treatment of history. He is untrue to his office if he suppresses facts like a partisan, and attempts to warp the judgment of his pupils by keeping them in ignorance of circumstances and arguments which they ought to know in order to form a fair judgment. Though such facts are unfavourable to the teacher's own point of view, he is (at least, so it seems to the present writer) in honour bound to disclose them in so far as the minds of the pupils are mature enough to appreciate their weight and true bearing. Does not a nation need in each of its schools somewhat different types of historical teaching, and teachers taking different standpoints? But any such arrangement, if it is to be compatible with national unity, involves toleration of conflicting opinions. Out of such active toleration (not out of indifferentism or suppression of the facts) rises the best kind of national unity—that moral unity which embraces much intellectual diversity, and which rests not on monopoly, but on open-minded freedom. But the possibility of maintaining such a state of toleration depends in large measure on a scrupulous regard for historical truth being shown by all teachers, on the avoidance of all factious partisanship, and on a constant and open-minded study of the "sources." It can only flourish when there exists between teachers and pupils, and between teachers and the parents of their pupils, that trust and confidence which are the sign and outcome of long-continued labour and devotion on the part of the teachers concerned.

The following passages occur in the article in *Le Temps* (March 8th, 1901) referred to above:—

L'Histoire Dans Les Lycées.

Le ministre de l'instruction publique vient d'adresser aux recteurs une circulaire prescrivant de limiter à l'année 1875 l'enseignement de l'histoire dans les lycées et collèges. C'est une mesure excellente et dont il convient de féliciter sans réserve M. Georges Leygues. Notons d'ailleurs que la section permanente du conseil supérieur de l'instruction publique, ayant été consultée, a été de l'avis du ministre.

La décision sera peut être critiquée comme attentatoire aux droits de la science et de la pensée. On représentera M. Georges Leygues et les membres

* *Miscellaneous Works*, 1845, pp. 359–60.

de la section permanente du conseil supérieur comme les partisans d'un système suranné de censure, d'obscurantisme et de mise à l'index. Mais ces railleries et ces protestations ne feront pas que ces messieurs n'aient pas rendu le service le plus signalé et le plus opportun à l'enseignement secondaire public.

Les droits de la science et de la pensée sont infiniment respectables. Ils sont parfaitement respectés au ministère de l'instruction publique et au conseil supérieur, mais ils ne sont nullement en jeu dans cette affaire. On ne prétend pas supprimer l'histoire de ces vingt-cinq dernières années, ni condamner les élèves des lycées et collèges à l'ignorer éternellement. On estime seulement qu'il y a temps et lieu pour tout, qu'il importe de ne pas tout mêler et tout confondre. Les droits de la pensée sont illimités en soi. Mais, dans la pratique, un intérêt vital peut leur imposer certaines réserves. La politique est une chose fort importante, passionnante même, si l'on veut. En tout cas, c'est un devoir de s'y intéresser pour tous les citoyens d'un pays libre. Mais elle n'est pas à sa place au lycée.

Voilà la vraie question et la justification irréfutable de la circulaire de M. Georges Leygues. L'histoire, en général, est une science. Mais l'histoire de ces vingt-cinq dernières années n'est pas une science. Elle le sera peut-être dans un siècle ou deux. Pour l'instant, elle appartient tout entière à la politique. Il est aisé d'exposer d'une manière objective non seulement l'histoire ancienne, non seulement l'histoire du règne de Louis XIV., mais celle même de la Révolution et de l'Empire. Car la façon subjective et prédicante de comprendre l'histoire, à la Michelet, a disparu en ne laissant que quelques chefs-d'œuvre littéraires. Les historiens contemporains, les professeurs d'histoire ont aujourd'hui avant tout le souci scientifique de l'exactitude des faits, qui conduit naturellement à l'impartialité du jugement. Et puis, même sur le dix-septième, le dix-huitième et le commencement du dix-neuvième siècle, sauf quelques théories particulières et quelque peu paradoxales, une certaine unanimité s'est faite pratiquement. Les gens de droite ne nient plus guère 1789, ni ceux de gauche les services rendus à l'unité nationale par la monarchie.

Mais lorsqu'on arrive au dernier quart de siècle, les plus sincères désirs d'objectivité sont vains et l'impartialité scientifique est impossible. Il y manque le recul. . . . Enfin et surtout, on est impuissant à traiter scientifiquement des événements contemporains, parce qu'on les voit nécessairement à travers ses opinions ou ses passions politiques. Il est tout naturel que les professeurs d'histoire aient, comme les autres, des opinions ou même, si cela leur convient, des passions politiques. Mais ils savent eux-mêmes qu'ils cessent de pouvoir être historiens dans la mesure même où ils usent de leur droit de citoyens. . . . Il est inadmissible que chaque professeur puisse se croire autorisé à tenir en classe des discours de réunions publiques. Qu'ils soient socialistes, nationalistes ou tout ce qu'ils voudront hors du lycée. Mais les pères de famille envoient leur enfants au lycée pour y apprendre le français, le latin, la géométrie,—et même l'histoire,—non pour y discuter politique. La crainte de la politique, de l'influence politique de tel ou tel professeur, est l'une des causes les moins douteuses de la désaffection de beaucoup de familles et de la crise récente de l'enseignement secondaire. Pour nos lycées et collèges menacés dans leur prospérité, la circulaire de M. Georges Leygues sera peut-être le salut.

Since the above appendix was written, a case has arisen which illustrates the difficulty of the situation. Monsieur Hervé, master at a public secondary school at Sens, recently published, under the signature "Un Sans-Patrie," some articles in a little revolutionary newspaper. A complaint was lodged against him at the War Office, on the ground that the articles were a scandalous attack on the army, and that their authorship was notorious. The Minister of Public Instruction felt it necessary to inquire into the matter. When charged with the authorship of the articles, which are described as being "socialistic and anti-military," M. Hervé frankly acknowledged his responsibility for them, and re-asserted his belief in the opinions which he had there expressed. There was an investigation of the case by the Academic Council of Dijon. One sentence in the incriminated articles is quoted

as follows: "A la religion catholique on se borna à substituer une autre religion plus imbécile et plus sanglante encore, la religion patriotique." The Academic Council of Dijon unanimously decided that "the calling of a journalist, as understood by Monsieur Hervé, is incompatible with the duties of a schoolmaster and educator." The Council also, by a majority, voted that M. Hervé should be removed from his position on the staff of the public secondary school. (*Le Temps*, August 8th and October 25th, 1901.) On appeal, the Dijon decision was annulled by the Higher Council of Education in Paris, December 6th, 1901, but the Council nevertheless decided that M. Hervé should be removed from his post

It is obvious that an elaborate system of State organisation of secondary education carries with it, in practice, if not in theory, considerable limitations on the personal freedom of the schoolmasters engaged in it. Readers of Dr. Arnold's *Miscellaneous Works* are familiar with many admirable letters on political subjects, which fell under the censure of some politicians, but were actually written and published (not always under a pseudonym) when he was Headmaster of Rugby. Most Englishmen are probably of opinion that, in times of national crisis, much good can be done by temperate and courageous expression of convictions on the part of responsible and influential citizens who may, nevertheless, be engaged in the work of education. And, even to take an extreme case, it will be admitted that Dr. Joseph Priestley had a healthy influence on English education through his work at the Warrington Academy, though it cannot be denied that some of his published observations were critical of the Government, and of established institutions. There seem to be three courses open in this matter. The State may either (1) definitely adopt a policy of comprehension, cheerfully admitting varieties of opinion, and relying on the good-feeling and self-restraint of the vast majority of those concerned as the best safeguard against scandals; or (2) it may discourage any expression of opinion on any subjects of controversy, at the risk of producing insipidity, ironical evasion, or indifferentism; or (3) it may frankly regard the machinery of State education as intended to manufacture (so far as such a thing ever can be manufactured) a particular type of opinion. There are obvious limitations to the practical application of this third view, and it must not be forgotten that the machinery may not always be in the same hands. Nor can those who take this view fairly claim that "the State," as they employ the term, is really another word for "all of us."

In a striking address at the Concours Général des Lycées et Collèges (the great annual function of secondary education in Paris), held last July, Monsieur Leygues, the Minister of Public Instruction, eloquently described the economic changes which have revolutionised the conditions of national life and of international competition. "The old methods of education will not do for present needs. . . . Physical strength and courage no longer suffice for victory: Knowledge is necessary too. . . . Education is the first duty of a State which has a prudent regard for its own future." Then he went on to say that "the State must inspire the rising generation with the modern spirit and with Republican ideals." Life, not books, must be made the text of lessons; school-boys must be made to realise the facts of the environment into which they have been born. "Or, la démocratie, est le milieu, et la République est le fait. L'État doit enseigner la démocratie et la République." Some of his hearers may, however, have found it hard to reconcile this doctrine with the principle enunciated in a later part of the same address. "Nous ne prétendons asservir les membres de l'Université (*i.e.*, the staff of teachers in the whole of the public secondary schools as well as Universities in France) à aucune opinion, à aucune doctrine. Leur indépendance est la condition de leur dignité. Leur liberté de penser et leur liberté politique n'ont qu'une limite, mais infranchissable: la conscience de l'enfant, qui ne doit jamais être troublée, et l'intérêt de l'Université, qui ne fait qu'un avec l'intérêt supérieur de la nation." (*Le Temps*, July 30th, 1901.) But perhaps M. Leygues would reply, with Aristotle, that "tact, not reasoning, must decide the mean."

APPENDIX VI.

Outline of the Organisation of a French Secondary School.*

Classes Primaires.

[Comprenant dans la plupart des lycées une Section Enfantine.]

Enseignement Secondaire.

Division Elémentaire	Classe préparatoire	
	Huitième	9 ans.
	Septième	10 ans.
	(*Certificat d'études.*)	

Enseignement Secondaire.

	Classique.		Moderne.	
Division de Grammaire.	Sixième	11 ans.	Sixième	10 à 11 ans.
	Cinquième	12 ans.	Cinquième	11 à 12 ans.
	Quatrième	13 ans.	Quatrième	12 à 13 ans.
	(*Certificat d'études.*)			
Division Supérieure.	Troisième	14 ans.	Troisième	13 à 14 ans.
	Seconde	15 ans.	(*Certificat d'études.*)	
	Rhétorique. (*Baccal. class, 1re partie.*)		Seconde. (*Baccal. de l'enseignement moderne, 1re partie.*)	

Philosophie.	Mathématiques élémentaires.		Première (Sciences).	Première (Lettres).
(*Baccalauréat classique, 2e part., 1re série.*)	(*Bacc. classiq. 2e part., 2e série.*)	(*Bacc. moderne, 2e part., 3e série.*)	(*Bacc. moderne, 2e part., 2e série.*)	(*Bacc. moderne, 2e part., 2e série.*)

Mathématiques spéciales.

(*Ecoles polytechnique, centrale, etc.*)

* From the *Annuaire de la Jeunesse*, 1900, p. 181. (Paris: Nony et Cie., 1901.)

APPENDIX VII.

Reform of Classical and Modern Secondary Education in France.

The French Ministry of Public Instruction anticipated the completion of the report of the Parliamentary Commission on Secondary Education, and the following proposals were adopted by the "Conseil Supérieur de l'Instruction Publique," at their meetings, December 24-28th 1900.

TITRE I.

PROPOSITIONS

relatives aux formes et conditions générales de l'examen du baccalauréat.

I.—Les examens qui déterminent la collation du grade de bachelier de l'enseignement secondaire sont subis devant les Facultés des lettres et des sciences, au siège des Universités et dans les villes désignées par le Ministre de l'Instruction publique.

II.—Les jurys d'examen sont composés : 1° de membres des Facultés des lettres et des sciences ; 2° de professeurs en exercice ou honoraires de l'enseignement secondaire public, agrégés ou docteurs, désignés par le Ministre de l'Instruction publique.

III.—Les professeurs de l'enseignement secondaire siégeant dans les jurys ne peuvent examiner les élèves de l'établissement auquel ils appartiennent.

IV.—Les jurys sont présidés, suivant les examens, par des membres de la Faculté des lettres ou de la Faculté des sciences.

V.—Les jurys sont constitués de telle sorte que les épreuves diverses soient jugées par des examinateurs dont la compétence est établie par leur enseignement ou leurs études.

VI.—Aucun ajournement, soit après les épreuves écrites, soit après les épreuves orales, ne peut être prononcé qu'en vertu d'une délibération du jury réuni à cet effet.

VII.—Lorsqu'un candidat a produit le livret scolaire prévu par l'article 6 du décret du 8 août 1890, il ne peut être ajourné, soit après l'épreuve écrite, soit après l'épreuve orale, sans que le jury ait examiné son livret dans la déliberation prévue ci-dessus.

Mention de cet examen, signée par le Président du jury, est portée sur le livret et sur le bulletin d'examen.

VIII.—L'analyse de tout ou partie d'un des textes portés au programme ne peut constituer un sujet de composition écrite.

IX.—En vue d'assurer la concordance entre les études et l'examen et de maintenir le niveau des épreuves dans les diverses Académies, des sujets de composition peuvent être arrêtés par le Ministre.

X.—Les rapports des doyens sur les sessions, les textes et sujets d'épreuves écrites, des séries de compositions et de procès-verbaux des épreuves et des rapports de proviseurs et de principaux sur les résultats des examens du baccalauréat sont communiqués à une commission composée de membres du Comité consultatif de l'enseignement public (1re et 2e sections, enseignement supérieur et enseignement secondaire).

Cette commission fait un rapport d'ensemble au Ministre et indique les observations qu'il paraît utile de porter à la connaissance des jurys.

XI.—A de certaines dates, en vue de juger de l'état et de la marche des études, la commission fera la comparaison des résultats obtenus au baccalauréat à plusieurs années d'intervalle.

TITRE II.

PROPOSITIONS

relatives au plan d'études classiques et aux épreuves du baccalauréat de l'enseignement secondaire classique.

I.—Le cours d'études classiques a une durée de sept ans.

II.—L'âge moyen pour chaque classe demeure tel qu'il est prévu, à titre d'indication, par le programme actuel.

III.—L'étude de la langue latine est le fonds commun aux diverses formes de l'enseignement classique prévues à l'article suivant.

IV.—A l'issue de la classe de troisième, les élèves de l'enseignement classique peuvent opter entre :

1° l'étude du grec ;

2° des cours scientifiques développés ;

3° des cours complémentaires de langues vivantes qui auront comme sanction l'épreuve écrite prévue ci-dessous.

V.—Les débuts de l'étude de grec restent fixés à l'époque prévue par le programme actuel. Les cours spéciaux de sciences et de langues vivantes prévus à l'article ci-dessus sont institués à partir de la classe de seconde.

VI.—Tous les enseignements, sauf les enseignements à option, sont communs à tous les élèves, et ceux-ci restent réunis dans les mêmes cours. Toutefois, dans les classes nombreuses, la séparation des élèves pour les cours autres que les cours à option pourra être autorisée à titre exceptionnel par le Ministre, sur la proposition du chef de l'établissement et après avis du Recteur.

VII.—(*a*) Une troisième épreuve est ajoutée aux deux épreuves écrites prévues par le règlement actuel de la première partie du baccalauréat de l'enseignement secondaire classique.

Cette épreuve consiste, au choix des candidats, en :

une version grecque ;

une composition de sciences ;

une composition de langue vivante.

La nature de ces deux dernières épreuves sera ultérieurement déterminée.

(*b*) A l'épreuve écrite prévue pour la seconde partie du baccalauréat de l'enseignement secondaire classique (2e série) est ajoutée une composition portant sur la philosophie.

Cette seconde épreuve a pour base le programme de philosophie de la classe de mathématiques élémentaires.

TITRE III.

PROPOSITIONS

relatives au plan d'études modernes et aux épreuves du baccalauréat de l'enseignement secondaire moderne.

I.—L'enseignement secondaire moderne a pour objet essentiel la préparation aux professions agricoles, commerciales, industrielles et coloniales.

Il est fondé principalement sur l'étude des sciences, notamment des sciences physiques et chimiques, et des langues étrangères.

II.—Le cours d'études modernes a une durée normale de six ans.

Il est divisé en deux cycles : le premier d'une durée de quatre ans, le second d'une durée de deux ans.

Pendant toute la durée des études, l'enseignement garde la même orientation.

Les études des deux cycles ont un caractère à la fois général et pratique. Le programme et la répartition des cours peuvent comporter certaines variations suivant les régions et suivant les établissements. Dans le choix des exemples et des applications, on aura égard aux besoins des industries ou professions des diverses régions. A cet effet, il sera tenu compte des indications fournies par les conseils généraux ou municipaux, les chambres de commerce, les bureaux d'administration, etc.

TITRE IV.

PROPOSITIONS

relatives à la revision des programmes de l'enseignement classique et de l'enseignement moderne.

En conséquence des dispositions ci-dessus, il y a lieu de reviser les programmes de l'enseignement secondaire classique et de l'enseignement secondaire moderne et ceux du baccalauréat de ces deux cours d'études.

Il y a lieu notamment :

1° Dans l'enseignement classique, de simplifier les programmes d'enseignement de la grammaire, d'histoire de la langue et d'histoire littéraire.

L'enseignement théorique des grammaires grecque et latine, dans les classes de grammaire, sera réduit aux paradigmes généraux et aux règles indispensables. On ne mettra en usage dans ces classes que des précis conformes à ce programme ;

2° Dans l'enseignement des langues vivantes étrangères, de déterminer avec plus de précision, en vue de l'acquisition effective de la connaissance de la langue usuelle, les programmes et les méthodes d'enseignement ;

3° D'alléger et de simplifier le programme d'histoire et d'y faire une plus large place à l'histoire contemporaine ;

4° De reviser le programme de philosophie ;

5° De fortifier l'enseignement scientifique pratique dans les classes élémentaires et de grammaire et de mettre d'accord les programmes des cours scientifiques des classes supérieures avec la nouvelle organisation de l'enseignement ;

6° De réserver dans les cours d'histoire naturelle, de philosophie et d'économie politique, le temps nécessaire aux leçons qui traitent des dangers physiques, moraux et sociaux de l'alcoolisme et d'assurer à tous les élèves le bénéfice de cet enseignement.

7° De fortifier et de développer l'enseignement du dessin géométrique et du dessin à main levée, et de rechercher dans quelle mesure une sanction pourra être attribuée à cet enseignement.

Reform of Secondary Education in France.

(i.) Proposals of the "Conseil Supérieur de l'Instruction Publique," adopted in March, 1901 (from the *Temps*, March 22nd, 1901).

I.—L'enseignement secondaire moderne est fondé principalement sur l'étude des sciences.

II.—Le cours d'études modernes a une durée normale de six ans.

Il est divisé en deux cycles : le premier d'une durée de quatre ans, le second d'une durée de deux ans.

III.—Les élèves de l'enseignement secondaire moderne qui auront accompli le premier cycle dans les établissements publics d'enseignement secondaire seront admis à subir un examen à la suite duquel sera délivré un diplôme d'études secondaires modernes.

Les conditions de cet examen seront déterminées ultérieurement.

IV.—La division des élèves de la sixième année d'études en trois sections (première-lettres, première-sciences, mathématiques élémentaires) est abolie.

L'examen du baccalauréat de l'enseignement secondaire moderne est subi à l'issue de la sixième année d'études : il ne comporte qu'une série d'épreuves écrites et orales ; ces épreuves sont les mêmes pour tous les candidats.

Les mentions diverses du diplôme, instituées par le décret du 5 juin 1891, sont supprimées.

V.—Le diplôme du baccalauréat de l'enseignement secondaire moderne

conserve toutes les sanctions qui lui sont actuellement attribuées ; il ne confère pas le droit de s'inscrire dans les facultés en vue de la licence ès lettres, de la licence en droit ou du doctorat en médecine.

A ces propositions est joint le vœu suivant, qui a été également voté :

Le conseil s'associe au vœu déjà présenté par les représentants des Facultés de droit au conseil supérieur, tendant à ce que le brevet de capacité en droit, tel qu'il est délivré par les Facultés, soit supprimé et que, à sa place, il soit créé un nouveau grade, supposant deux années d'études dans une Faculté de droit et deux examens de fin d'année.

Ces études et ces examens porteraient exclusivement sur les principales branches de la législation française actuellement en vigueur.

Ce nouveau grade serait accessible aux bacheliers de l'enseignement secondaire moderne : il devrait être nécessaire et suffisant pour la nomination aux fonctions d'avoué, de notaire, de juge de paix, de greffier des tribunaux civils et des tribunaux de commerce, peut-être de l'enregistrement, la licence en droit, ayant, bien entendu, à ce point de vue, la même valeur.

(ii.) The French Parliamentary Commission on Secondary Education, and the proposals of the Ministry of Public Instruction for the reform of Secondary Schools.

La commission de l'enseignement s'est réunie sous la présidence de M. Ribot et a décidé de demander au ministre de l'instruction publique de venir conférer avec elle en vue de lui faire connaître les résolutions qu'il compte prendre au sujet de la réforme de l'enseignement secondaire.

On sait comment la situation se présente.

La commission, après sa grande enquête, a pris un certain nombre de conclusions sur lesquelles un débat doit avoir lieu devant la Chambre. Le ministre s'est engagé à n'appliquer aucune nouvelle mesure avant que ce débat ait eu lieu.

Entre temps, le ministre a consulté sur la même question le conseil supérieur de l'instruction publique qui, sur un certain nombre de points, a formulé des conclusions différentes de celles de la commission parlementaire et même, dans certains cas, contradictoires avec ces dernières.

La commission désire savoir à quel parti le ministre va se ranger, s'il adopte l'un ou l'autre système ou une combinaison transactionnelle de manière à pouvoir faire un rapport supplémentaire à la Chambre.

A l'issue de la réunion, M. Ribot s'est rendu auprès du ministre pour lui communiquer la demande de la commission. (*Temps*, May 24th, 1901.)

M. Leygues, ministre de l'instruction publique, et M. Rabier, directeur de l'enseignement secondaire, ont été entendus, hier, par la commission de l'enseignement réunie sous la présidence de M. Ribot.

L'accord entre le ministre et la commission s'est établi sur la plupart des questions concernant la réforme de l'enseignement secondaire, principalement sur les plans généraux d'étude et sur l'autonomie des lycées.

Le ministre a annoncé qu'avant la séparation des Chambres il demanderait la mise à l'ordre du jour, pour les premières séances de la rentrée, de la discussion des conclusions de la commission d'enseignement. (*Temps*, July 1st, 1901.)

NOTE ON THE REVISED CURRICULA AND PROGRAMMES OF WORK FOR HIGHER SCHOOLS FOR BOYS IN PRUSSIA, 1901.

The great educational conference, which was summoned to Berlin by William II. soon after his accession to the Prussian throne, though ending really in a compromise, prepared the way for many important changes in the courses of study in Prussian higher schools for boys. These changes were embodied in the "Lehrpläne and Lehraufgaben," issued in 1892. By the permission of the Prussian Government, an English translation of this important document, prepared by Mr. W. G. Lipscomb (late assistant-master of University College School, London, and now headmaster of the County School, Isleworth), was published in Vol. III. of Special Reports on Educational Subjects, issued 1898.

In May, 1900, a second higher school conference met at Berlin, in which the chief question under discussion was the equality of status of the three types of higher schools with a full nine-years course. Other reforms were proposed during the debates, and certain changes were recommended in the curricula of these schools. Such of these proposals as found acceptance with the authorities of the Education Department have been incorporated in a new issue of the time-tables and programmes of work published in the July number of the *Centralblatt für die gesamte Unterrichts-Verwaltung in Preussen* for June–July, 1901, and since that date issued as a separate pamphlet by the printing press of the Waisenhaus at Halle.

It is thought that some indication of the nature of these changes will be acceptable to English readers. It is not, however, intended in this paper to offer a new translation of the current *Lehrpläne*, which came into force at Michaelmas this year, but only to d aw attention to the most important alterations.

Issued without any prefatory letter to the Provinzial-Schulkollegien, enjoining their immediate introduction, the programmes of work remain in their broad outlines unchanged; indeed, the differences are less than might have been anticipated from the changes in the number of hours assigned to the various branches. It may be noted that in the upper division the matter of the instruction is less frequently distributed between the individual classes than in the former edition, thus securing to the authorities of each institution in the later stages of school instruction greater freedom to select and arrange the material in accordance with the special needs of the pupils and the circumstances of the school.

In the "Notes on Method" considerable changes have been introduced, and herein lies the most important advantage to be drawn from the new programmes. For they reveal the spirit of the changes and constitute, as all teachers will admit, a statement of pedagogical principles of no little value. What follows is a full translation of the most important new passages, the substances of the others being added in summary form. The two appendices have been reduced to one and the matter greatly compressed; here, too, the new passages are reproduced *in extenso*, and sufficient indication given to identify those portions of the previous edition which have been retained.

(1) Religious knowledge.

The old programmes have been reproduced without change.

(2) Mother tongue.

Into the instruction in the mother tongue few changes have been introduced. The injunction as to the absolute identity of grammatical terminology in Latin and the mother tongue is not repeated. This is, perhaps, to be regarded simply in the light of a verbal alteration, or the omission may be due to the fact that in the Reform Schule no Latin is taught in the two lowest forms. The type of curriculum, known as the Reform Schule, though never mentioned throughout this document, is yet known to enjoy a high degree of favour.

Increased attention is paid to geographical topics in the selection of reading material for the lower stages, and to the works of modern authors for the later stages. For example, Heyse and Grillparzer are characterised as desirable. In the upper stage the reading material is not distributed between the classes, the selection and arrangement within the prescribed limits are left to the authorities of each individual school. It is held with regard to the prose works read in the upper classes, that they should provide the matter for the examination of important general ideas. It is suggested that aptly-guided reading of this kind may give effective support to an introductory course in philosophy, which it is desirable to include in the programme of Prima, or where circumstances are unfavourable to such inclusion, it may form in some degree an efficient substitute for such a course.

With regard to method, it is noted that it is not advisable to read a play in class right through from beginning to end; reading in parts is also used very sparingly, and only in specially suitable scenes, and, as a rule, only after discussion and proper preparation. In the upper classes it is always to be borne in mind that the discussion of the context and its comprehension are the main purpose, and this should not be thwarted by the teachers giving lengthy lectures on literary history. The same earnest attention as heretofore is paid to the training in oral expression. Short lectures and reports by the pupils on what they have read or heard are still used for this purpose, but a warning is given that such reports must never degenerate into a repetition of essays previously learnt by heart, but they must gradually develop in the pupil the power of repro-

ducing in a simple and suitable fashion while speaking freely sound knowledge and clear views. All teachers must take full advantage of every means which may help to develop the power of expression in speech and writing.

The aim of the instruction is formulated somewhat differently in the new version. In 1892 it ran as follows for the Gymnasium :— "To enable boys to understand the more important classical writers of the Romans, and to give them a linguistic training." In 1901 the aim is expressed thus :—"On the sure basis of grammatical training to enable boys to understand the more important classical writers of Rome, and thus to introduce them to the intellectual life and culture of the ancient world." The aim of Realgymnasium is confined to the comprehension (based on accurate grammatical knowledge) of the easier works of Roman literature. (3) Latin.

In the revised time-tables six extra hours are assigned to Latin in the Gymnasium and the Realgymnasium, but whereas in the fully classical school these extra hours are almost entirely devoted to the study of grammar, in the more modern type it is the reading of books that gains the advantage. In schools of both types rather less composition is done, no retranslation back into Latin is demanded in Sexta, and in the upper classes of the Gymnasium the Latin summaries of reading matter are no longer required.

Some slight changes in the apportionment of authors between the various classes have been introduced—*e.g.*, Ovid may sometimes be studied in IIIB., though, as a rule, the reading in this class is confined to Cæsar, De Bello Gallico, i.-iv. ; in IIIA. selections from the Bellum Civile may be substituted for portions of Bell. Gall., v.-vii. ; in IIB. Vergil may be begun in the second half-year, though this author is chiefly to be studied in IIA. Certain orations of Cicero are suggested by name—*e.g.*, in IIB. *Pro Sext. Roscio, In Catalinam* and *De Imperio Cnei Pompeii ;* for IIA., *Pro Archia, Pro Ligano, Pro Rege Deiotaro, In Cæcilium,* and *Cato Major ;* for I., *In Verrem,* iv. or v., *Pro Plancio, Pro Sestio* (all with omissions), *Pro Murena* have been chosen together with selections from his philosophical and rhetorical writings and his letters. The *Germania* of Tacitus is also to be read at least up to Chapter 27 ; and either the *Agricola* or *Dialogus* (selections) together with selections from the Annals and Histories. In the Realgymnasium Livy and Cicero may be substituted for Cæsar in IIA., while in I. a greater amount of Cicero and selections from Horace (*Odes*) and Tacitus (*Germania*) may be read ; it is, however, forbidden to read two authors concurrently.

With regard to the treatment of grammar the omission of all unnecessary detail is even more strongly insisted on. "The instruction is always to be confined to the most important points, to what is frequent and characteristic, so that a sharp line is to be drawn between that which the pupil is intended to acquire for permanent possession and that which is explained to him casually

before or during the reading-lesson. The caution refers both to vocabulary and grammatical rules, which are still often overloaded with too much detail."

The following paragraph deals with composition :—"The pieces for translation into Latin to be done in class are, as a rule, to be composed by the teacher. They must be simple, but yet at the same time make sufficient demands on the boy's intellectual power, so that the translation may be regarded as his independent work. If they are connected with the reading material care must be taken to avoid their becoming mere memory work. Instead of written home-work preference should generally be given to carefully-conducted oral translation out of an exercise book, which in matters of grammar and style is restricted to what is most important, and in respect of content is calculated to promote the general aim of the instruction."

(4) Greek

According to the new definition the aim is to enable boys by means of a sufficient knowledge of the language to form acquaintance with some of the literary productions distinguished both in matter and in style, and through them to gain an insight into the intellectual life and culture of Ancient Greece.

The hours assigned to Greek have not been increased, and no important change has been made in the course of study. With regard to the reading matter the following note has been added :—"Based on a thorough grammatical knowledge, the instruction must aim at revealing to the pupils the train of thought and artistic form of the work which they are reading, both as a whole and in its various parts. In dealing with longer poetical works the teacher must avail himself of good translations to supplement those portions which are read in the original. As a rule Xenophon is not to be read after IIB. It is advisable to make a standard selection from the Homeric poems indicating those portions which are to be read regularly, those which are not to be read, and those which are optional. In order to overcome the difficulties presented in the choruses in the Greek tragedies, it is necessary to replace preparation at home by the pupil by the teacher's help in class ; the same remark applies to the more difficult passages in prose—*e.g.*, many speeches in Thucydides."

(5) Modern languages—French and English.

The "aim" for the Gymnasium remains the same, except that for the words "not too difficult important writings" are substituted "the most important writings." In the case of the Realgymnasium the new programmes add "some knowledge of the chief chapters in the literary and social life of the French people." The same remark applies to the Oberrealschule; and the old "linguistic training" is replaced by "insight into the grammatical system of the language." For the Realschule the new programmes add a separate aim—viz., "a comprehension of the easier works of modern times, linguistic training, and a certain facility in the use of the written and spoken language." In the case of English the only difference is the formulation of an aim for the Realschule.

This runs as follows:—"Correct pronunciation, some exercise n the oral use of the language, a knowledge of the accidence and the more important rules of syntax, comprehension of easier books."

In the actual programmes there are practically no changes to notice. That the reading material should have a substantial content is more than once insisted on, and in the modern schools more attention is to be paid to the history, literature, and culture of the French and English nations.

On the other hand, the "Notes on Method" have been entirely recast and are here translated in full.

1. *Pronunciation.*—Earnest attention must be paid in all stages to the acquisition and retention of a good pronunciation. After it has been taught at the very outset of the instruction in a special short course, and acquired by means of a manifold and exact practice, it must still be constantly cared for in all successive stages and increased demands made on the pupil's correctness, fluency, and accent. With reference to the cases where the pronunciation is really unsettled, some agreement must be arrived at between the teachers of the same institution. It must ever be the care of the modern-language teacher that the training and control of the organs of speech thus attained redound to the advantage of the pronunciation of the mother tongue.

2. *Conversation Exercises.*—Conversation exercises, which in their simplest form are to be employed from the beginning, must accompany the instruction in all classes, and be entirely omitted in no lesson. Here, too, the demands made on the pupil are to be suitably increased, not only in matter—by means of a regular and methodical extension of the material used—but also in form, *i.e.*, in fluency and in more connected sentences. However, simple dialogue must be the rule. Conversation exercises connected with reading must be supplemented by such as deal with the incidents and relations of ordinary life. Moderate use is recommended of pictures, which have some meaning and are not distasteful in execution, of maps, of illustrated papers, and such like aid to teaching. In every case care must be taken that such exercises do not degenerate into a mechanical interchange of question and answer. Teachers are warned against attaching excessive importance to mere externals in the present conditions of foreign countries to the neglect of other matters of more importance for their relations to Germany.

3. *Vocabulary.*—There should be connected with these conversation exercises the acquisition and retention of a not too narrow vocabulary, including concrete things. To this vocabulary must be added a stock of common and well-established phrases, both to be derived from suitable reading pieces and from the observations of pictures and actions. List of words, classified according to their meaning, can also render good service. Practice in the collection

of words philologically connected, or of allied meaning, may be pursued even in the upper classes, not only to fix them better in the memory of the pupils, but also to heighten the linguistic interest. This fixing of the vocabulary also affords many opportunities for incidental instruction in the history of the language, which must be utilised according to the grade of the class.

4. *Reading Material.*—Reading must form the chief branch of the instruction, and, at least in the second half of the course, provide material with a content of value and written in a good literary style. In making the selection special attention must be directed to works that introduce the pupils to a knowledge of the customs and culture of the foreign people; in modern schools technical and scientific reading material must also be included. The reading matter contained in many school text-books needs careful sifting, and steps must be taken to secure that any individual single "year" is preserved from a harmful one-sidedness of reading books. Though many linguistic exercises—grammatical and other—are connected with the reading material, the latter must, least of all in the upper classes, never be relegated to a subsidiary *rôle.* In all grades, and with increasing proficiency, the reading of French and English texts fluently, lively, and with proper accent must be carefully practised. It will prove a valuable aid to let the pupils learn and carefully deliver well-selected poems and pieces of prose. Attempts to replace the translation of foreign texts into good German by a discussion of the content in the foreign tongue can only be permitted so far as the skill of the teacher and the development of the pupils guarantee a full comprehension of the train of thought.

5. *Grammar, etc.*—Grammar is to be subordinated to reading, but must not be thrust so far into the background that all systematic arrangements and all distribution of fixed portions of grammar between the separate classes are given up; a regular system must stand out clear before the pupil at the end of the course. This must most especially be the case at the Oberrealschule and the Realschule, but it is to be observed (with proper distinctions) at all other types of school. Allusions to other languages learnt by the pupils are never to be neglected. The usual sequence in accidence and syntax is to be retained, but not so rigidly that important syntactical rules may not be taken earlier and less common forms in the accidence postponed. The chief aim must be to secure a perfect mastery of what is usual, while in the case of not a few grammatical rules it will be found sufficient to draw attention to them during the reading. How far (if at all) in the upper classes an extension of the grammatical instruction is to be permitted, in the shape of an explanation of such phenomena, either from the logical, psychological, or from the historical point of view, depends upon the conditions of each individual institution. In no case can such an "extension" replace a real mastery of grammatical rules: repetition and perfection are

the things most needful. Grammars written in French and English are not to be used.

How much attention is to be devoted to the study of synonyms, metres, and style is determined by the actual need. Instruction on these points is to be connected, when occasion offers, with concrete examples. The relation between knowledge and application must be quite different in the case of a living from that of a dead language; in the former case a many-sided application, full of life, must always be the natural aim.

6. *Written Exercises.*—Although on the whole a greater weight is attached to the oral exercises, yet written work is by no means to be neglected. As a rule, in modern schools—at least in the lower and middle classes—one exercise, even though it be a short one, should be done each week, while in the upper classes and in the Gymnasium longer intervals may be allowed. Written exercises are not to be confined to translations into the foreign tongue; spelling exercises as well as "recastings" (*Umformungen*), even syntactical in character, and imitations are to be included at an early stage, especially in modern schools, in order to lead up to the free compositions in the upper classes. Written translations into the foreign tongue may from time to time be replaced by free compositions, under conditions similar to those laid down with regard to the translation of the reading material. Nevertheless, these exercises, by means of which the pupil is gradually led on from a literal translation to a freer expression of the same thought in another dress, cannot be entirely dispensed with. The essays of the upper classes in modern schools (four at home and two in class in each year) are not to be confined to historical subjects, but most varied topics are to be selected.

7. *Vehicle of Instruction.*—It is perhaps desirable that the teacher should employ (as far as he profitably can) the foreign idiom in his instruction, but the thoroughness and earnestness of the instruction must not be impaired thereby. For more difficult and exhaustive explanations, especially in grammatical matters, it will always be well to use the mother tongue; on the other hand, the employment of the foreign idiom is especially suited for instruction on points of literature and history.

8. *Concentration.*—Attention must be paid in all grades to a proper combination of the different branches of modern language teaching, especially in the upper grade of modern schools, where the separate aims which have also to be pursued may easily endanger the general result of the instruction.

The programmes of work, with the exception of a few slight verbal changes, remain unaltered. A new form has been given to the note dealing with instruction on social and economic topics. It now runs as follows:— 6) History.

"The instruction in economic and social questions, in their relation to the present time, prescribed for IIB. and IIA. demands peculiarly reliable tact and great circumspection in the choice and treatment of matter to be

dealt with. The instruction, given in an ethical and historical spirit, must discuss on the one hand the justness of many of the social demands of the present day, and on the other hand expose the ruinous character of all violent attempts to alter social conditions. The more objectively the historical development of the mutual relations of the different classes of society, and in particular the position of the working classes, is treated, and the continual progress towards a better state of things is shown, without any display of prejudice, the sooner will it be possible, seeing the healthful common sense of our younger generation, to enable them to form a clear and calm judgment of the dangers attending the unjustifiable social ambitions of the present day.

"This instruction in economic and social questions may easily be introduced without any inappropriateness where in the course of history the solution of such problems has been attempted. Wherever the history of the last centuries offers an opportunity of reviewing the social reforms effected by the civilised States of Europe, the transition to a representation of the services of our ruling House in furthering the national well-being down to the most recent times is a natural one."

(7) Geography. [It should be remembered that the new curriculum for the Oberrealschule assigns one hour a week in each of the three upper classes to this branch, which in the case of the Gymnasium and Realgymnasium is coupled with history.] With the exception of a few verbal alterations, no changes have been introduced for the Classes VI. to IIB. For IIA. and IB. the following is the prescribed programme:—

Comprehensive repetition of what has previously been learnt: In the Oberrealschule, the outlines of physiography and occasional instruction in certain chapters of anthropology. In the Gymnasium and Realgymnasium the chief points of these branches are to be succinctly taught; outlines of mathematical geography in connection with the instruction in mathematics or physics. Comparative survey of the most important lines of communication and trade routes down to the present time, in the Oberrealschule in the special hours of geographical instruction, in the Gymnasium and Realgymnasium in connection with the history lesson, but in each half year at least six hours are to be reserved for geographical repetition.

In the "Notes on Method" strong insistence is laid on the proper use of maps. After the pupil has learnt to read them aright, it is said that a wall map or atlas must form the starting point and the centre of the instruction; the text-book is only to be the pupil's guide for recapitulation at home.

Drawing is of great importance for this branch of instruction, as contributing towards the formation of clear ideas and towards the fixing in the memory of sound geographical knowledge. But teachers are warned not to make excessive demands on their pupils, but to be content with outlines, skeleton maps, and suchlike broadly-defined representations on the blackboard. Map-drawing, as a rule, is not to be done as home-work. The pupils will have to confine themselves to the production of simple sketches during the lesson after a preparatory drawing on the part of the teacher; the mere reproduction of copies is not to be permitted. In the upper stage

drawing may very usefully be employed in the regular repetition lessons.

It is desirable that in all schools the geographical instruction be placed in the hands of teachers who have made a special study of this branch, and care is to be taken that at any school the instruction is not distributed among too many masters. In the repetition lessons in the upper classes of Gymnasien and Realgymnasien the instruction in political and physical geography is to be given by the teacher of history; in mathematical geography by the teacher of mathematics or physics.

The following are the main changes introduced into the "Notes on Method":— (8) Mathematics.

1. In the higher schools the chief object of the mathematical instruction is to provide such a training of the intellect as will enable the pupil to apply correctly in independent work the ideas and knowledge which he has gained. Therefore in all the various divisions of this branch the aim must be to secure a clear comprehension of the propositions to be developed and of their proof, as well as practice and skill in their application. Accordingly the teacher of mathematics, equally with the teacher of any other branch, is urged to use every opportunity to foster a proper use of the mother tongue, and this point is most particularly to be remembered in the correction of written work—especially of more independent work done at home, which in the upper classes is to be done, as a rule, every four weeks, in addition to the usual class exercises.

3. The instruction in geometry begins with a preparatory course, which, starting with the consideration of simple bodies, develops the power of observation and at the same time gives the pupil opportunities of gaining practice in the use of compasses and ruler.

5. In all schools the most careful attention is to be given to practice in problems of construction, and this practice must accompany the instruction up to the highest classes; but any problem must be excluded which demands for its solution a knowledge of remote principles or special skill in execution. By means of a reasonable selection of exercises, which may be solved by common methods and out of the materials already at the pupil's command, and through the clearness of his instruction, the teacher must awaken in his pupils a feeling of independent capacity and use to the full the formative force of such exercises.

6. The omission of a preparatory course in trigonometry and solid geometry in IIB. of the Gymnasium does not preclude that, when these branches are taken up at later stages, the first instruction should not be of such an introductory character. Trigonometry is to be treated at first by means of figures —that is, geometrically; and, in order to reach as soon as possible the solution of triangles, only such formulæ are to be practised as are absolutely required for this purpose. Solid geometry is to begin with the consideration of simple bodies

(*e.g.*, cubes and prisms), and a more strictly systematic instruction is not to be given till later. In modern schools such introductory courses in trigonometry and solid geometry must be exclusively and under all circumstances followed. Here, as in the earlier stages, models and mathematical wall charts will prove of great assistance in securing proper visualisation and thoroughness of instruction.

7. How far the different branches of mathematics are to be treated simultaneously or successively must depend upon the conditions prevailing at any given school. In modern schools the extent to which these different branches can be carried will differ with the different "years" of pupils, and in the Oberrealschule the difference will be greater than in the Realgymnasium. It was not considered advisable to define more narrowly the optional branches, and it is by no means necessary to treat them in any detail, but the opportunity to deal more fully with these branches is not to be withheld. The results of experience will make it possible at a later date to fix in greater detail the aims of such instruction.

8. For the highest class of the Gymnasium the programme prescribes the introduction of the pupils to the important theory of co-ordinates, and the simplest presentation possible of the fundamental properties of conic sections, which can also be given synthetically. But it is not intended that systematic instruction in analytical or the so-called new geometry should be given. Equally little do the formulæ necessary to understand mathematical geography and astronomy call for any extended treatment of spherical trigonometry. They may be simply deduced from a consideration of the properties of solid angles. Here, too, as elsewhere, care must be taken that, side by side with such knowledge, skill in its application is acquired, and this point of view must determine the selection and the extent of the material of instruction.

9. The defect of the mathematical instruction in the upper stage—viz., that it is too exclusively of the nature of calculation—will be best remedied by practice in geometrical observation and construction. In solid geometry (quite apart from the question of descriptive geometry) it is specially important to prepare and assist the pupil to understand the principles of projective drawing.

10. In the highest class, side by side with the solution of problems in the different branches of mathematics, there must be a comprehensive revision of the theories and processes already learnt. An opportunity will thereby present itself of giving to the pupils a fuller understanding of the theory of functions with which they have become partially acquainted at a previous stage.

11. The independent position which mathematics occupy in the curriculum of the higher schools does not prevent—least of all in the upper stage—the instruction from gaining in value, if

the pupil learns how the results of this science may be applied to other branches of knowledge, whether they be those of every-day life or physical science, and if opportunity be given for the development of his mathematical sense by practice in application in these directions. Accordingly it is permissible to make a more extended use of those parts of physics which admit of mathematical treatment, not only in the physics lesson, but also in the mathematical instruction. In the Gymnasium, it is true, owing to the small number of hours allotted to the branch, such practice can only be really fruitful if the instruction in physics and mathematics be entrusted to one and the same teacher, as has been suggested by the brackets of the time-table. In the modern schools, owing to the greater number of hours, there is not an equal measure of necessity for this combination.

Natural science.

The following new paragraph has been placed at the head of the "Notes on Method":—

"In the instruction in natural science the acquisition of a number of separate items of information, however valuable for ordinary life, is not an end in itself, but only a means towards the promotion of general culture. The pupil is to learn to use his senses rightly and to describe correctly what he has observed; he is to gain an insight into the regular sequence of natural phenomena and into the importance of these natural laws for every-day life; he is also to be brought to understand, as far as is possible in the school, the means by which man has attained and can attain a knowledge of these laws. A larger place in this instruction is to be given to observation and experiment."

The following sentences have been added to the "Notes on Botany and Zoology":—

"From the lowest stage upwards the attention of the pupils is to be directed towards the vital phenomena and relations, including allusions to the geographical distribution of plants and animals. Here special regard must be paid to the pupil's own observations; while, on the other hand, care must be taken to avoid anything that passes beyond the comprehension of the class. Practice in the recognition of native plants is desirable, and can be carried out according to the classification of Linnæus. It is admissible in all stages to bring to the notice of the pupils simple phenomena from other branches of science, so far as they help the pupils to understand animate nature and do not pass beyond their comprehension. In all stages the pupils are to be given practice in drawing in simple outline what they have observed Scientific excursions will afford the possibility of bringing home to the observation and comprehension of the pupils the phenomena of life in the animal and vegetable world, and the mutual dependence and community of existence of both, as well as opportunities for further very valuable practice in recognising native plants."

4. The instruction in anthropology at the Gymnasium can be achieved in three months' work if it is chiefly confined to the anatomical side, leaving the physiological side to the instruction in chemistry and physics. For this purpose it will be necessary in one of the top classes (preferably in I.) to devote some of the hours assigned to physics to a course in physiology.

5. The instruction in physics and chemistry (including mineralogy) is divided into two stages:—

(*a*) In the first stage, including as a rule IIIA. and IIB., only the most simple theories, which lie nearest to the interest and comprehension of the pupil, are to be dealt with. Here experiment of the simplest kind possible forms the basis of the instruction, and the pupil's own experience is to be taken as the starting-point. The selection is to be confined to the matters noted in the programmes of work. In modern schools, as well as in Gymnasien, the barest outlines of chemistry are to be included in this course as preparatory to later instruction, since in the second stage, beginning with IIA., special hours are assigned to this branch. The distribution of the four hours devoted to natural science in the IIB. of Realgymnasien between the descriptive and experimental sciences is left to the discretion of each institution. Under special circumstances—especially in schools not having the full complement of nine classes—a different distribution of the material for science may be permitted, provided that there is no ultimate reduction in the amount of work assigned to them. In the Oberrealschule, physics and chemistry are separated from the first.

(*b*) In the second stage, which is based on the first, the knowledge already acquired is broadened and extended. Here, too, experimental work is an important feature in the instruction; but in contradistinction to the lower stage, where it is rather qualitative, it is here quantitative. In addition, the chief laws are to be treated mathematically. The instruction in theoretical optics is to be confined to the most important phenomena (especially in such matters as polarisation and double refraction). With regard to mathematical geography and astronomy, the chief points are to be considered in the mathematical lesson, and the instruction in physics has only to supplement the knowledge already acquired. In this stage the material of instruction may be differently distributed between the classes, so long as the final aim is attained.

(*c*) The instruction in mineralogy is most naturally connected with chemistry. This does not preclude that in special circumstances—*e.g.*, in mining districts—special consideration may not be given to this branch. The chief crystalline forms and the physical and chemical properties of the chief minerals are to be studied, and at modern schools the elements of geognosy and geology besides.

It may be noted that swimming as an adjunct to gymnastics is to be kept steadily in view and to be encouraged wherever possible. (10) Physical exercises.

1. The recognition in principle of the equality of the three types of higher schools makes it possible to develop more thoroughly the peculiar character of each. (11) General remarks.

In order that the unmistakable progress which has been made in the economy of the instruction of the various branches since 1892 may be maintained and even carried still further, the headmasters must make greater efforts to secure that equally high demands are not made on the pupils in all branches of instruction, but that the most important, according to the character of the institution, are emphasised and extended. It is expected that the teachers of the different branches will duly observe this point of view by showing mutual consideration and the necessary self-restraint.

2. The combination of IIIB. with IIIA., and of IIB. with IIA. is to be avoided as far as possible. Their separation is unconditionally required :—

IIIB. from IIIA. in Gymnasien in Greek and Mathematics;
in Realgymnasien and Oberrealschulen in English, Mathematics and Science.

IIB. from IIA. in Gymnasien, in History and Geography, and in Mathematics;
in Realgymnasien and Oberrealschulen in History and Geography, Mathematics and Science.

In Realschulen all six classes must be kept distinct.

3. The Provinzial Schulkollegium is empowered :--

a. In bilingual districts to increase the instruction in German in vi. and v. by one hour a week, and to raise the number of hours for these classes to twenty-six.

b. In all modern schools to interchange the number of hours allotted to French and English, provided that such a departure seems justified by the position and business relations of the town where the school is situated, provided also that the attainment of the general aim in both branches is not permanently impaired thereby.

c. In Gymnasien to sanction all deviations from the normal curriculum (noted herein as permissible) with regard to the instruction in modern languages in the three top classes, but this, however, for the present, only with Ministerial consent, and after submitting a detailed justification of each separate case.

In their administrative reports the Provinzial Schulkollegien must mention all such deviations under A. and B., and state the cause which led thereto and the results of the changes. The introduction of alternative instruction to Greek in IIIB. to IIB., in a Gymnasium or Progymnasium needs Ministerial sanction.

[4. Former par. *re over-burdening.*]

[5. Regulations as to *Home Work.*]

6. In addition to the class exercises prescribed in the programmes of work and in the "Notes on Method," there should be set in the middle and upper classes, short essays on certain well-defined subjects of no wide range, which have already been treated of in the instruction, in German, in foreign languages, in history and geography, and in natural science. These essays are to be corrected by the teachers of the branches concerned, and special regard is to be paid to the suitability of the expression.

[7. Note on the educative function of the school.]

A. E. TWENTYMAN.

September, 1901.

HIGHER SCHOOLS FOR GIRLS IN GERMANY

An Introductory Sketch

Note

The proof-sheets of the following paper have been read by Herr Schulrath Dr. Lüngen, of Frankfurt a/M., and several corrections and alterations have been suggested by him. I wish to express my sincere thanks and sense of obligation to him for his kindness in undertaking such a task.

M. A. L.

HIGHER SCHOOLS FOR GIRLS IN GERMANY

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HIGHER SCHOOLS FOR GIRLS IN GERMANY

An Introductory Sketch *

"Die höhere Mädchenschule weiss sich mit den Volks- und mit den übrigen höheren Schulen darin eins, dass sie nicht eine Fach- oder Berufsschule sein will, sondern dass sie ihren Zöglingen diejenige allgemeine Bildung mitzugeben sich bemüht, durch die sie befähigt werden, sich auf die ihrer harrenden Aufgaben, und auf den für sie bestimmten Lebenslauf vorzubereiten.

Die Bestimmung der höheren Mädchenschule als einer deutschen: ein lebendiges Nationalbewusstsein, eine hohe Wertschätzung deutschen Wesens, und deutscher Sprache.

Denn nicht ein internationales Amphibium, das nirgend sich recht heimisch fühlt, sondern ein deutsches Mädchen, dass mit seinem ganzen Herzen in seiner Heimat wurzelt, soll aus der höheren Mädchenschule hervorgehen."—Dr. Sommer. *Die Entwickelung des höheren Mädchenschulwesens in Deutschland.*

I. Preface

To understand and sympathise with the organised system of Secondary education for girls in Germany, one must approach the subject with a perfectly unbiassed mind, remembering that the English ideal is far removed from the German ideal. Moreover, the present period is one of transition, of controversy,

* The following paper is based upon a personal inquiry into the system of public Secondary education for girls in Germany, made during a period of six months, from June to December, 1899. Representative public schools and training colleges in Berlin, Cologne, Coblenz, Hildesheim, Frankfort-on-the-Main, Darmstadt, Heidelberg, Carlsruhe, Eisenach, and Weimar were visited, in addition to private schools in Berlin, Frankfort, Bonn, and Heidelberg, while the heads, or members of the staff of important schools in Bremen, Brunswick, Hanover, Leipzig, Munich, Minden, Danzig, and elsewhere, were consulted either in person or by letter. The latest developments of Higher Education for women were studied in Berlin and Bonn especially. Frequent opportunities for private discussion of the subject of girls' education occurred. I had the honour of being invited to attend the meeting of the "Verein für das höhere Mädchenschulwesen," held at Hildesheim, in October. I wish to take this opportunity of expressing my sense of the extreme kindness and courtesy with which I was received in every institution which I visited, and by every authority whom I consulted. Especial thanks are due to Herr Hofrath Oberschulrath Dr. v. m Sallwürk, Herr Schulrath Dr. Lüngen, Herr Direktor Dr. Thorbecke, Herr Direktor Dr. Hamann, Herr Hofrath Dr. Ritter, Fräulein von Cotta Fräulein von Milde, Frl. Dr. Gernet, Herr Hofrath Dr. Löhlein, Herr Direktor Dr. Hessel, Herr Direktor Dr. Rehorn, Herr Direktor Dr. Landmann, Herr Direktor Dr. Horn, Herr Direktor Dr. Blumberger, Fräulein Müller, Herr Professor Dr. Rein, and many others, for much valuable help and advice. I wish to express my sincere obligation to the numerous Heads who were kind enough to send me copies of their "Jahresberichte" and full information with regard to their respective schools, in the States which circumstances prevented me from visiting. For want of time, it has not been possible to make use in this paper of all the material at my disposal, so I regard the following sketch as only an introduction to the subject, which in many parts will need to be supplemented later on.

of conflicting ideals, of slowly advancing reform, a period upon which it is impossible to pronounce a final judgment.

State regulation of Secondary education for girls is a comparatively new thing in Germany; it has not yet had time to develope, to take a permanent form. What the result ultimately may be, it is not easy to prophesy. That the present restrictions and limitations will be removed, and a more generous and larger culture authorised, may be hoped for in due time. There is no doubt that the present organisation of Higher Schools for Girls is perfect within certain limitations, and that a very admirable system of training for the great mass of the young feminine population has been devised. But it is in essentials the same for every child, no thought is taken of the exception, of the individual. Boys are much better off than girls in this respect. There are several different types of schools for the different types of boy. But for girls there is only one, with practically the same organisation and curriculum. The newer developments, the attempts to give girls a more liberal education, are only tolerated, not yet encouraged by the State. The Germans are slow to be convinced, are slow to take action. But when they have once made up their minds that certain reforms are necessary, then we may feel sure that those reforms will be carried through. Public attention is being called to the question of girls' education, and one frequently hears most enlightened opinions expressed concerning it. Different organisations and societies, not only of women, but of cultivated men, are devoting their best energies to its higher development. There is every reason, therefore, for taking a hopeful and sanguine view of the progress which is going on steadily, although slowly.

It will be seen that very striking reforms have been made in the last quarter of a century. A corresponding rate of progress, on more liberal lines, during the next twenty-five years, may reasonably be expected, especially if the attitude of the State becomes one of encouragement, rather than merely of tolerance, or non-interference.

The question of Higher education for women has been, and is still, a subject of keen controversy. Few doubt the capacity of women for Higher education, but whether it be for their real *good*, and, more important still, for the good of Germany, is debated. It must, therefore, be acknowledged that the present state of Higher education for women in Germany is not satisfactory, when it is compared with that of England and other countries. The following extract from a speech of Dr. Waetzoldt, published in the *Centralblatt* (the official organ of the Prussian Education Department) for 1895, may be taken as fairly representative of the opinion of the authorities who to so large an extent decide the destinies of the German girl:—"Let us not forget that the most pressing necessity is not found in Universities for women, nor in the participation of women in the scientific labours of the times, nor in the opening of higher professions for women, *but in the care and extensive education of the millions of girls—indeed, for the education of the mothers of the coming generation.* The graceful

structures of a higher education and the capstone of the edifice will remain insecure until they can rest upon the broad and secure foundation of a general education for the people. A State which neglects this, and promotes Higher education exclusively, works for show, and neglects the general weal of the people while it may satisfy the desires and claims of a noisy minority."*

The object of this paper is to give some account, however brief and incomplete, of the system of State regulated Secondary education for girls in Germany. To this will be added a short note on the latest development of school, the so-called 'Mädchengymnasium' (although it does not, strictly speaking, come under the heading of this paper), together with some information on the subject of the training of women teachers, and the State examinations which they are required to pass.

II. The Name

The name 'höhere Mädchenschule' has now a definite signification in Germany, and cannot be used in the vague sense of the corresponding term 'High School for Girls' in England. It connotes a clearly defined organisation and curriculum, and a teaching staff possessing certain qualifications, as we shall see later on. To show its exact position in the system of public education for girls in Germany the following explanation may be useful:—

There are three grades of schools for girls in Prussia.

(*a*) Volksschule (Elementary School).
(*b*) Mittelschule (Middle School).
(*c*) Höhere Mädchenschule (Higher School).

We are not at present concerned with the Elementary School, but the "Middle" school needs a word of explanation, as the same name is used in Baden in a different sense.

A Mittelschule in Prussia, as its name indicates, signifies a school occupying a "middle" position between, on the one hand the Volksschule, and, on the other, the höhere Mädchenschule. It is intended for children whose parents can pay a moderate fee. The staff has not quite the same qualifications as that of the Higher School, nor is the standard of work so advanced, although it is above that of the Volksschule. One modern language is obligatory, and the length of the school course does not exceed eight years. In Baden, however, a Mittelschule signifies something more. The whole educational system of Baden is classified as follows:—

(*a*) Volksschule (Elementary School) = Elementary.
(*b*) Mittelschule (Middle School) = Secondary.
(*c*) Hochschule (High School) = University.

In Baden the Higher Schools for girls, which comply with the conditions required, are *officially* recognised as being on the same footing as the secondary schools for boys, and all are

* Quoted from a translation in *German Higher Schools*, by J. E. Russell, Ph.D.

classed together as *Mittelschulen*. This is not yet the case in Prussia, although many other States have authorised the recognition of Higher Schools for girls as belonging to the system of secondary education.

It is worth remembering that the name 'Mädchenschule' is gradually taking the place of the older term 'Töchterschule,' which, it is hoped by many, will soon become obsolete. So in England people speak of a "girls' school," no longer of an "educational establishment for young ladies."

III. Historical Sketch

It would be impossible in the limits of this paper to enter into a detailed history of the origin and growth of public Secondary education for girls in Germany. A short sketch in outline of some of the most important movements is, however, necessary in order to understand its present condition.

Nearly all the public schools for girls in Germany have been founded during this century, and by far the larger number during the last thirty years. Previous to 1870 the state of secondary education for girls was, speaking generally, extremely unsatisfactory. Even in the public schools the standard was low; while in the private schools, of which a large number existed, the work was superficial and the teaching inadequate. Each went its own way independent of the others, there was no unity of plan, no organisation common to all. The state of girls' schools before the Franco-Prussian War is described as being "chaotic," while the attitude of the public towards them was one of perfect indifference.

Little or nothing had been done by the Government; such schools as there were owed their origin either to private enterprise, or to the energy and liberality of the municipal authorities of the towns. Reforms in every direction were urgently needed, This was recognised by the leaders of the 'Frauenbewegung': for when the 'Allgemeine Deutsche Frauenverein' was founded in 1865, the society devoted its chief attention to improving the state of education for girls. Thoughtful men and women have since then devoted themselves to the subject; and whether they had the same ideals of education, or differed in opinion as to how the ideals were to be realized, they have this in common, that they have all been animated by the same disinterested spirit, and by an ardent desire to insure for the younger generation that education which would be best fitted for their needs as future citizens of the great German Empire. The rapid growth of the national feeling of unity, of ardent patriotism, of love for German literature and history, as well as the increased prosperity of the country after the war, contributed largely to the sudden improvement and development of secondary education for girls, which dates from the early seventies.

The establishment of new schools went on rapidly in the towns. It was their pride to spare no expense in erecting suitable and spacious buildings, and in providing the best teaching they

could secure for their children. While the State was occupied with education for boys, the task of providing public secondary schools for girls was left almost wholly to the towns. They fulfilled their duty nobly. Before 1880 something like 130 new girls' schools had been founded and endowed. Heads of girls' schools began to meet and confer with each other on the best modes of teaching girls, to exchange programmes, to discuss the possibility of a curriculum common to all. Books were written on the subject, periodicals arose which were devoted to it. A fixed plan of studies began to be introduced, and a more clearly defined organisation. Subjects useless from the pedagogical standpoint were discarded from the school programmes; the teaching of two modern languages, French and English, became compulsory, and one of the distinguishing marks of a Higher School. This steady progress, on the whole, was taking place unaided, and practically unnoticed, by the State.

Still, for want of a central scheme of organisation, there was naturally lack of uniformity in the schools; each had to develop in its own way; each differed from the others in organisation and methods. Moreover, although a great improvement was taking place in both public and private schools, many of the latter were still far below the standard desired; they called themselves 'Higher' schools, although they in no sense deserved the title. Again, in spite of all that had been done, the great mass of public opinion was either indifferent or actually opposed to secondary education for girls. The schools seem to have had the heavy task imposed on them, not only of educating their pupils, but of attempting to educate public opinion.

There were only two ways of remedying the existing evils; either the State must interfere, or, failing that, the schools must help themselves. It cannot be said that the State appeared impressed by the urgency of the crisis, therefore to the schools was left the task of their own reform.

The year 1872 is an important date in the history of education for women in Germany, and marks a turning point. In that year a meeting of Head Masters, Head Mistresses, and teachers in girls' schools, public and private, was summoned at Weimar, to consider the question of reforms in the curriculum, teaching, and organisation of Secondary Schools for girls throughout Germany. It is true that some conferences between 'Directors' had already taken place, but these only represented the views of certain sections. Therefore the assembly at Weimar was the first fairly representative meeting of Heads of girls' schools which had ever been held in Germany. They met on September 30, 1872, on classic ground. There were 164 persons present, 110 men and 54 women. The most strongly-opposed interests, the most widely divergent opinions on girls' education were represented. There were Heads of public and private schools, large and small, fully equipped or defective; in fact, of practically every type of school for girls which existed then in Germany How were opinions and interests so diverse to be reconciled, how was order to be evolved from chaos?

The set business of the meeting was to discuss "suggestions on the subject of legal regulations as to the organisation and status of Higher Schools for Girls in Germany, in relation to the rest of Secondary Education and to the State control of the same."

Nine "theses" on this subject had been prepared, and after a very warm discussion were finally adopted. These theses really include all the essentials which distinguish the Secondary from the Elementary School. They dealt with organisation, curriculum, aim of the school, age of pupils, number of successive classes, composition of staff, qualifications required, the necessity that "Higher" Schools should be officially recognised as such, the advisability of having a curriculum for all schools, drawn up by a specially appointed committee; and finally they demanded that those schools, and *only* those, which conformed to the regulations prescribed should be entitled to call themselves 'höhere Mädchenschulen.'

The results of this meeting at Weimar at first seemed successful beyond the utmost hopes of its promoters. In 1873 the Prussian Minister of Education summoned a conference of specialists to discuss the subject more in detail, the result being that they practically confirmed all the resolutions passed at the Weimar meeting. Another meeting of Heads of schools was soon after held at Hanover, and then the society was formed which has since become so well known in Germany, the 'Deutsche Verein für das höhere Mädchenschulwesen.'*

To write the history of the Higher School for Girls since 1872 would be to record the history of the transactions of the Verein. With indefatigable energy and zeal, the members have devoted themselves to these objects: to fix a certain standard for the schools: to obtain unity of organisation: to gain official recognition of their status as Secondary Schools from the Government. There are branch societies in most parts of Germany, and every two years general meetings are held at some important centre of education, and at these meetings proposals are made and resolutions adopted which practically determine the position of Higher Schools for Girls in Germany. To each meeting, beside the members, representatives of the Education Department of each State in the German Empire are invited, and take part in the discussions. Not only Heads of schools, but assistant teachers of both sexes are eligible for membership. The affairs of the Verein are managed by a general Committee, consisting of representatives of each branch, and a special Committee chosen from this. Ladies take their full share in the business of the Verein, a certain number of them being members of the Committee. The programme for each meeting is drawn up by the Committee, which meets as often as is necessary for business. The importance of this association is fully recognised by the different Governments which send representatives to its meetings. Even those who are not in sympathy with the Verein acknowledge that its members have exhibited rare self-

* "The German Association for the Secondary Education of Girls."

devotion, and that its work is absolutely disinterested, having only one end in view—to develop the exterior and inner organisation of girls' schools upon the principles laid down at Weimar.

The struggle has been a very uphill one. The first gleam of hope of success and recognition was soon quenched. The Prussian Government of the early seventies, which had at first seemed so favourable to the Weimar theses, became absorbed in other business, and had no time to devote to secondary education for girls. The other German States at first waited to see what Prussia would do. But finding Prussia slow to move, they have led the way. The first important step was that secondary schools for girls should be classed no longer among the Elementary but among the Higher Schools, that is on the same footing as the secondary schools for boys.* This happened in Saxony in 1875 and 1876; Würtemberg in 1877; Baden, 1877; Hesse, 1874, 1876, and 1880; Brunswick in 1876. They had already gained recognition in Anhalt so long ago as 1850.

The position of women teachers in Higher Schools for Girls became a question which demanded urgent attention. The control of these schools, and all the teaching in the upper classes, were in the hands of men; women occupied a subordinate position, teaching only in the lower classes. A concerted effort was made in 1876 to improve their position, but without very satisfactory results. Even those men who warmly sympathised with them feared that the time had not yet come to grant what they desired. It was claimed that the imperfect education and training which they had received had not fitted them to teach in the upper classes. Moreover, many feared that the appointment of women to more responsible positions might further endanger the reputation of the schools, which were just emerging from a condition of chaos and mediocrity, and might prevent their recognition by the State as secondary schools, thereby retarding the whole progress of women's education. These counsels prevailed at the time, and no immediate improvement took place.

But, on the other hand, gradual reforms in the training of teachers were carried out, and by steady, resolute efforts, by strenuous study in leisure hours, the German women have shown by their actions, and not by words only, that they were not merely fitted by nature, but fully qualified by training and education, to occupy the position which they desired. Before many years had passed it was acknowledged that they were not only *desirable*, but *indispensable*, in the upper classes of the Higher Schools.

In the meantime the work of the Verein went on steadily. The members memorialised the Prussian Government again and again on the subject of the official status of the schools, but without much result. The internal organisation of the schools made steady progress year by year. Improvements of many kinds were introduced and better methods of teaching proposed.

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* Prussia and Bavaria are the only important States where this has not yet taken place.

In 1886, quite unexpectedly, the Education Department at Berlin showed signs of interest in secondary teaching for girls, and issued a 'Normal Lehrplan für die höheren Mädchenschulen in Berlin,' which was submitted to the Verein for discussion.

The Prussian Minister of Education attended the meeting, which was held in Berlin, and in a friendly speech invited criticism of his Lehrplan, and expressed his wish to do all he could for the education of girls. The Lehrplan, although in the main approved of by the Association, had one serious defect—it provided only for a nine years' course, instead of ten years, which experience had shown to be absolutely necessary. The Minister was unable to be present and hear the criticism of his Lehrplan, which was withdrawn soon afterwards.

The apparently hostile attitude of the Prussian Government towards Girls' Higher Schools may have been due to a certain anxiety lest the schools should go too far, and should endanger the ideal of feminine education. The Conservative party looked with disfavour on the vision of the emancipated woman. The other parties regarded the subject with indifference, if not dislike. Public opinion too often either ridiculed or ignored the existence of the Higher School for Girls. It would have been extremely difficult for a Government to pass through both Houses a measure to secure official recognition of girls' Secondary Schools in the same class with boys. And besides, the Government may have deemed that it was doing the schools a real service in allowing them to mature naturally, untrammelled by regulations. In reply to repeated petitions always came the answer—"Not yet; it is too soon; things are not ripe yet."

The meeting of the Verein für das höhere Mädchenschulwesen at Heidelberg in 1890 is memorable as showing the great advance which had been made by women teachers, and what excellent work was being done by them, and how important their position was becoming. A great change had taken place since former days. It was unanimously voted that women teachers were "indispensable" in the upper division of a Higher School. In consequence of this the Government was memorialised to establish a higher examination for women teachers, and lectures for them were soon after begun in Berlin and in Göttingen. The Verein also pressed on steadily for reform in the *Lehrerinnenprüfung* urging that the period of preparation should be at least three years, and that the candidates should be nineteen years old before presenting themselves for examination.

May 31, 1894, is a date not likely to be forgotten by anyone in Germany interested in the education of girls. On that date the Prussian Minister of Education issued the well-known "Bestimmungen über das Mädchenschulwesen, die Lehrerinnenbildung und die Lehrerinnenprüfungen, vom 31 Mai 1894,"* which caused so much excitement in the educational

* "Regulations for Girls' Schools, the Training and Examination of Women Teachers." This is commonly referred to as the "Maibestimmungen."

world, and which decides, for the present at any rate, the destinies of girls' schools in Prussia.

On the whole, the essentials for which the Verein had been working so many years were granted. For the first time there was an *official definition* of a Higher Girls' School:—It shall have (at least) seven graduated classes; the course shall last nine years; the staff shall consist of University men and trained teachers, both men and women; two foreign languages shall be taught. An official programme of work and a time table were subjoined. Schools which already had instituted a ten years' course were allowed to adhere to it. The age of candidates for the *Lehrerinnenprüfung* was raised to nineteen, and the regulations were more clearly defined. But, most important of all, was the instituting of the Higher Examination for Women Teachers, the passing of which would entitle them to teach in the upper division of a Public Higher School, and to rank as *Oberlehrerin*. It was required that the charge of one class in the *Oberstufe* should be assigned to a mistress, and that one of the senior mistresses should be selected to act as assistant to the Director when necessary.

While, on the whole, many people approved of these Regulations, great regret was felt at the reduction of the number of school years from ten to nine. The *schulpflichtig* age is fixed by law at the completion of the child's sixth year. It was considered a distinctly retrograde step if the age at which a girl's school education should cease was limited to fifteen instead of sixteen. Voluntary classes (*Selekta*) can hardly take the place of regular school work at that age. It was felt that the pupils by leaving school at fifteen would suffer serious injury from losing the year which was most important for their education.

Again, although the 'Higher School' for Girls was clearly enough defined by these Regulations, nothing was said to put it officially in the same category with the Higher School for Boys. And so the matter remains to this day. Some concessions have been made by the Government; a certain number of men teachers have received the title of Professor (as at Boys' Higher Schools); University Graduates who had been appointed as Directors were not required to undergo the *Rektorprüfung* hitherto demanded;* and some of the Higher Girls' Schools have been put under the same authority as the Higher Boys' Schools —the 'Provinzial Schulkollegium'†—thereby giving a kind of tacit recognition of their status. Nevertheless, an official statement of their exact position in the Kingdom of Prussia is still wanting, and this is, in some degree, an injury to the schools.‡

The condition of Secondary Education for girls at present offers a marked contrast to that of forty years ago. Then there was disunion, lack of a definite aim, programmes in many

* *Handbuch des höheren Mädchenschulwesens.* Dr. Wychgram, page 47.

† The organisation of the Central and Local Authorities for Secondary and Elementary Education in Germany is described in Mr. Field's paper, in this volume on "*The Smaller Public Elementary Schools of Prussia and Saxony.*" Section II.

‡ See *Appendix I.*, also § V. (d) below.

cases impossible or ludicrous, any number of classes, pretentious schemes, inefficient teaching. *Now* there is a fixed standard, a fixed curriculum, a fixed organisation: the teachers are civil servants, with assured salaries, and pensions in case of illness or old age. This satisfactory state of affairs is in large measure due to the unceasing labours of the leading members of the Verein für das höhere Mädchenschulwesen. They constitute a highly skilled body of specialists in education, without whose approval and support it would be difficult, if not impossible, to introduce and carry through any measure of vital importance affecting the future of education for girls in Germany.

IV. The Present Position of Secondary Education for Girls in Germany

According to the statistics furnished by Dr. Wunder in Wychgram's *Handbuch des höheren Mädchenschulwesens*, there are 196 public secondary schools for girls in Germany, with a Ten or a Nine Years' Course. (See accompanying tables for details).

All except six have been founded during this century. There are 128 in Prussia, 24 in North Germany (excluding Prussia), and 44 in South Germany.

It is characteristic of the attitude of the Prussian Government towards Secondary education for girls, that of these 128 schools only *four* have been founded by the State. These are the Elisabethschule and the Augustaschule at Berlin, the Luisenschule at Posen, and the Higher School for Girls at Trier, the last three having 'Königliche Seminare' in connection with them. All the remaining schools owe their origin to the energy and enterprise of the towns, or to special foundations.

There are two Royal schools in Bavaria, one at Ansbach, the other at Aschaffenburg, and in other States schools have been founded in some cases by the reigning monarch. Such are the Royal Schools at Stuttgart, the Sophienstift at Weimar, the Higher School at Neustrelitz. The 'Zabelsche Anstalt' at Gera is due to private munificence. In Anhalt all four higher schools are under State supervision. Thus it will be seen that out of a total of 196, only seventeen are directly due to the initiative of the State.

One hundred and twenty schools have adhered to the Ten Years' Course, while seventy-six conform to the Prussian Regulations and have a Nine Years' Course. According to Dr. Wunder's list,* fifty-three schools have a 'Seminar' attached to them, while twenty-four, at least, have classes for senior girls, attendance at which is optional. Sometimes these classes are called 'Selekta,' and are looked upon as a continuation of Class I. Other schools have 'Fortbildungskurse,' which are attended not only by young girls but by grown-up women. We hear also of courses of lectures in literary and scientific subjects being given in a Higher Girls School (for example, at Hanover I., Dir. Dr Wespy) during the winter months for the benefit of senior students.

* See note to following table.

It is impossible to obtain exact statistics of the number of teachers (men and women) and of pupils in these schools at the present time. In 1896 Dr. Wunder calculated that there were 1,551 men and 1,369 women teaching, and the total of pupils he puts at 57,918.†

Table of Public "höhere Mädchenschulen" in Germany, having either a Ten or a Nine Years' Course, and showing the number of Classes, Teachers, and Pupils; stating also the number of Schools which have *Seminare* or 'Continuation Classes,' in connection with them, in the year 1896.*

Prussia.	Schools.	Ten Years' Course.	Nine Years' Course.	Number of Classes.	Men Teachers.	Women Teachers.	Pupils.	With "Seminar" Attached.	With Continuation Classes.
Provinces.									
Ostpreussen	9	5	4	75	44	49	2,281	4	—
Westpreussen	7	5	2	71	55	48	2,028	6	—
Brandenburg	23	9	14	276	198	191	9,126	5	4
Pommern	6	4	2	61	37	45	1,717	2	—
Posen	4	3	1	41	34	28	1,105	2	—
Schlesien	9	2	7	85	65	51	2,197	3	3
Sachsen	19	6	13	198	132	123	5,550	3	2
Schleswig-Holstein	4	3	1	47	30	35	1,396	1	—
Hannover	13	5	8	123	91	81	3,514	4	4
Westfalen	8	7	1	64	55	49	1,929	3	—
Hessen-Nassau	9	5	4	122	99	61	3,628	3	3
Rhein-Provinz	17	17	—	180	112	131	4,842	4	—
Total	128	71	57	1,343	952	892	39,313	40	16
South Germany.									
Baiern	18	7	11	121	158	93	3,381	1	4
Württemberg	11	11	—	108	99	77	2,829	1	1
Baden	7	7	—	82	57	52	2,372	2	1
Hessen	5	5	—	71	64	40	2,259	1	—
Elsass-Lothringen	3	1	2	39	23	34	1,045	2	—
Total	44	31	13	421	401	296	11,886	7	6

* Condensed from the statistics given by Dr. E. Wunder in the "Handbuch des höheren Mädchenschulwesens," Dr. J. Wychgram.

† Dr. Wunder says that in 1896, in Prussia alone, there were some 160,000 boys in attendance at Public Secondary Schools

North Germany (excluding Prussia).	Schools.	Ten Years' Course.	Nine Years' Course.	Number of Classes.	Men Teachers.	Women Teachers.	Pupils.	With "Seminar" Attached.	With "Continuation" Classes.
Sachsen	2	2	—	31	32	12	800	—	1
Mecklenburg-Schwerin	2	2	—	19	8	15	289	1	—
Sachsen-Weimar	2	2	—	19	15	21	565	1	1
Mecklenburg-Strelitz	2	—	2	16	10	9	473	—	
Oldenburg	1	1	—	10	8	7	277	—	—
Braunschweig	2	2	—	30	20	19	774	1	—
Sachsen-Altenburg	1	1	—	10	7	4	220	—	
Sachsen-Gotha	2	—	2	21	14	13	496	—	—
Anhalt	4	4	—	42	37	27	1,203	1	—
Schwarzburg-Sondershausen	2	2	—	18	11	11	316	1	—
Reuss ä. L.	1	—	1	8	9	4	163	—	—
Reuss j. L.	1	—	1	9	9	4	315	—	—
Lippe-Detmold	1	1	—	9	2	7	170	—	—
Hansastädte	1	1	—	24	16	28	658	1	—
Total	24	18	6	266	198	181	6,719	6	2
Grand Total for Germany.									
Prussia	128	71	57	1,343	952	892	39,313	40	16
North Germany	24	18	6	266	198	181	6,719	6	2
South Germany	44	31	13	421	401	296	11,886	7	6
	196	120	76	2,030	1,551	1,369	57,918	53	24

At Easter, 1898, a "Seminar" was opened in connection with the Higher School for Girls at Minden (Direktor, Dr. Schlüter); and Easter, 1899, another at Leipzig (Direktor, Dr. Wychgram). These are not included in the above table.

The number of girls who attend public secondary schools, when compared with boys, is very small. Their education is still principally in the hands of private individuals. Those private schools which desire recognition as 'höhere Mädchenschulen' must comply with the same regulations, and, generally speaking, adopt the same organisation and curriculum as the public school. To be allowed to exist at all implies a certain

standard of merit, as no unqualified or unsuitable person can open a private school in Germany under any circumstances whatever.

Many of the best Higher Schools for Girls in Germany are private, the standard of work in them being so good that no interference by Government or Town Council is needed. Take for example Bremen, whose reputation as an educational centre is widely known, although there is no recognised public Higher School for Girls in the city. In Bonn, too, no public school is required, as the private schools supply every need. This must be the case in many towns, but the subject is one about which it seems impossible to obtain exact statistics, and which would offer an important field for special inquiry. The chief source of information for a foreigner is the *Statistisches Jahrbuch der höheren Schulen* (Teubner), which contains in a condensed form particulars about most of the Secondary Schools for boys and girls in Germany. But of five private schools which I visited in different cities, and with which I was favourably impressed, there was no mention whatever in this handbook. This proves that it does not furnish anything like a complete or accurate record of the private secondary schools.

While the best private schools conform to the general standard, they appear to have a more strongly marked individuality than is usually noticed in the great public schools, where one of the ideals is uniformity in methods, organisation, and curriculum. So far as I have had any opportunity of judging, many of the private schools are in the hands of women, and are largely staffed by women teachers, some of considerable ability. The fees are usually fixed according to a higher scale than is found in the public endowed schools, ranging, in some of the better schools, as high as £20 per annum. In some German States, private schools which satisfy all requirements receive aid from public funds.*

It is, of course, impossible for all private schools to reach the same high level; many, for reasons too numerous to relate, find it difficult to exceed the standard of the *Mittelschule*† and, it is said, only differ from it in teaching two foreign languages instead of one.

It is interesting to notice that the newest type of school for girls, the so-called 'Mädchengymnasium,' is the result of the combined efforts of private individuals, and is not a 'public' school in the same sense that the Higher School for Girls is.

The small private boarding-school, the Pensionnat, flourishes in Germany. Though these schools are largely frequented by foreign children, it is very much the habit of German parents to send their daughters after, or even before, they have completed the course in the Higher Schools, to one of these establishments, to be 'finished' in foreign languages, or taught such 'accomplishments' as are not included in the programme of the Higher School.

* See the article on *Privatschulen* in Prof. Rein's *Encyklopädisches Handbuch der Pädagogik.*

† See II. above.

The pupils also frequently learn cooking, and are trained in the management of a household.

This habit of German parents is often regretted by those who are interested in the education of girls, especially when the latter are removed early from school in order to be sent abroad. The study of the history, language, and literature of their own country is too often given up, or neglected, just when the pupil has reached the most impressionable age, and in this way an extremely valuable part of her education is lost.

It is quite impossible to give anything resembling an adequate account of private secondary schools within the limits of this article. A special paper might well be devoted to the subject. I can only hope to convey the impression that they are very numerous, and, in many cases, excellent, and that they occupy a very important place in the system of Secondary Education for Girls in Germany.

V. The Public Higher School for Girls.—(*a*) The Time Table.

The Official Prussian Time Table.

	—	Unterstufe (Lower Division).			Mittelstufe (Middle Division).			Oberstufe (Upper Division).			—
	Class	IX.	VIII.	VII.	VI.	V.	IV.	III.	II.	I.	Total.
1	Religious Instruction	3	3	3	3	3	3	2	2	2	24
2	German	10	9	8	5	5	5	4	4	4	54
3	French	—	—	—	5	5	5	4	4	4	27
4	English	—	—	—	—	—	—	4	4	4	12
5	Arithmetic	3	3	3	3	3	3	2	2	2	24
6	History	—	—	—	—	2	2	2	2	2	10
7	Geography	—	—	2	2	2	2	2	2	2	14
8	Natural Sciences	—		—	2	2	2	2	2	2	12
9	Drawing	—	—	—	—	2	2	2	2	2	10 (8)
10	Writing	—	3	2	2		—	—	—	—	7 (9)
11	Needlework	—	—	2	2	2	2	2	2	2	14
12	Singing	2	2	2	2	2	2	2	2	2	12 (18)
13	Gymnastics				2	2	2	2	2	2	18 (12)
	Total	18	20	22	28	30	30	30	30	30	238

The accompanying official Lehrplan, issued in Berlin in 1894, arranges the distribution of subjects, and the number of

lessons in each subject for a school course of nine years. In the case of schools which have already instituted a course lasting ten years, the work for the higher division is to be extended over a period of four instead of three years. The age at which a child enters school has been fixed at six years; in schools with a nine years' course, she leaves at 15, in those with a ten years' course at 16.

Let it be remembered what are the distinguishing characteristics of a fully-equipped Higher School for Girls:—(*a*) It has, at least, a nine years course; (*b*) this course is in three divisions (Unter- Mittel- and Oberstufe); (*c*) two Modern Languages are compulsory, of which French is begun in the fourth school year, and English in the seventh; (*d*) the Staff must consist of a certain number of duly qualified men and women teachers.

The subjects of instruction are:—Religion, German, French, English, Arithmetic, History, Geography, Natural Sciences, Drawing, Writing, Needlework, Singing, Gymnastics.

While the main characteristics are the same everywhere, there are certain variations, due to local needs or the arrangement of the staff.

To illustrate these variations I reproduce the time tables of four representative schools, with a number of pupils ranging from 500 to 800.

A. A Nine-Class Prussian school, with Seminar attached.
B. A Ten-Class Prussian school, with Seminar attached.
C. A Ten-Class Baden school, with Selekta, and with Seminar attached.
D. A Ten-Class Saxon school, without Seminar.

A comparison with the official Time Table will show that *A* corresponds with it exactly. So does *B*, but in *C* we find differences. We note that more time is given to Modern Languages, and, in the Upper Division, to German. Great stress is laid upon Gymnastics and Needlework in the Lower Division. Drawing is begun a year earlier. Physical Geography is a separate subject. I shall refer to the time table for the Seminar later on. *C* has its own characteristics. No Gymnastics or Needlework in the first year, a great deal of time for Writing. less time for German than in Prussian schools, less time for English; French is much the same.

It will be noticed that most of the classes in these schools are in two divisions, *a* and *b*, and in one case in three, *a*, *b*, and *c*. These divisions are parallel, and the same work is done in each.

A.—Time Table of a Nine-class Higher Girls' School in Prussia, with Seminar Attached.

		Seminar.				Upper Division.						Middle Division.						Lower Division.						Total.
	Classes	I.	II.	III^{a}.	III^{b}.	I^{a}.	I^{b}.	II^{a}.	II^{b}.	III^{a}.	III^{b}.	IV^{a}.	IV^{b}.	V^{a}.	V^{b}.	VI^{a}.	VI^{b}.	VII^{a}.	VII^{b}.	VIII^{a}.	VIII^{b}.	IX^{a}.	IX^{b}.	
1	Religious Instruction	2	2	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	54
2	Pedagogy	6	2	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12
3	German	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	8	8	9	9	10	10	124
4	French	5	5	5	5	4	4	4	4	4	4	5	5	5	5	5	5	—	—	—	—	—	—	74
5	English	5	5	5	5	4	4	4	4	4	4	—	—	—	—	—	—	—	—	—	—	—	—	44
6	Arithmetic	2	2	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	54
7	History	2	2	3	3	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—	—	—	30
8	Geography	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	32
9	Natural History	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—	32
10	Drawing	—	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—	—	—	26
11	Writing	½	½	—	—	—	—	—	—	—	—	—	—	—	—	2	2	2	2	3	3	—	—	15
12	Needlework	—	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	31
13	Singing	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—	23
14	Gymnastics	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	40
	Total	32½	32½	30	30	30	30	30	30	30	30	30	30	30	30	28	28	22	22	20	20	18	18	591

B.—Time Table of a Ten-class Higher Girls' School in Prussia, with Seminar Attached.

		Lower Division.			Middle Division.			Upper Division.				—	Seminar.		
	Classes	X.	IX.	VIII.	VII	VI.	V.	IV.	III.	II.	I.	—	III.	II.	I.
1	Religious Instruction (a) Catholic	3	3	3	3	3	3	2	2	2	2	26	2	2	2
	Religious Instruction (b) Lutheran	3	3	3	3	3	3	2	2	2	2	20	2	2	2
	Religious Instruction (c) Jewish	—	—	—	2	2	2	2	2	2	2	6	1	1	1
2	German	10	9	8	5	5	5	4	4	4	4	58	3	3	3
3	French	—	—	—	5	5	5	4	4	4	4	31	4	4	4
4	English	—	—	—	—	—	—	4	4	4	4	16	4	4	4
5	Arithmetic and Geometry	3	3	3	3	3	3	2	2	2	2	26	2	2	2
6	History	—	—	—	—	2	2	2	2	2	2	12	2	2	2
7	Geography	—	—	2	2	2	2	2	2	2	2	16	1	1	1
8	Natural Science	—	—	—	2	2	2	2	2	2	2	14	2	2	2
9	Drawing	—	—	—	—	1	2	2	2	2	2	11	2	2	1
10	Writing	—	3	2	2	1	—	—	—	—	—	—	1	—	—
11	Needlework	—	—	2	2	2	2	2	2	2	2	16	2	1	1
12	Singing	1	1	1	2	2	2	2	2	1	1	16	1	1	—
13	Gymnastics	1	1	1	2	2	2	2	2	2	2	17	1	1	1
14	Pedagogy	—	—	—	—	—	—	—	—	—	—	—	2	3	5
	Total	18	20	22	28	30	30	30	30	30	30	285	32	31	31

C.—Time Table of a Ten-class Higher Girls' School in Baden, with Selekta, and Seminar Attached.

		Lower Division.			Middle Division.						Upper Division.								Seminar.		
	Classes	x.	ix.	viii.	vii.a	vii.b	vi.a	vi.b	v.a	v.b	iv.a	iv.b	iii.a	iii.b	ii.a	ii.b	i.	Selekta	iii.	ii.	i.
1	Religious Instruction	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	2	2	1
2	German	7	6	6	6	6	6	6	5	5	6	6	4	4	5	5	5	2	4	4	4
3	French	—	—	—	6	6	6	6	5	5	5	5	5	5	5	5	4	2	3	3	7
4	English	—	—	—	—	—	—	—	—	—	—	—	4	4	5	5	5	2	2	2	6
5	History	—	—	—	—	—	—	—	2	2	2	2	2	2	2	2	2	2	2	2	—
6	Geography	—	—	2	2	2	2	2	2	2	2	2	1	1	1	1	1	—	2	2	—
7	Arithmetic	5	5	4	3	3	3	3	3	3	3	3	3	3	2	2	2	—	3	3	—
8	Natural Sciences	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	2	—	3	3	—
9	Writing	—	3	3	2	2	2	2	1	1	—	—	—	—	—	—	—	—	1	1	—
10	Drawing	—	—	—	1	1	2	2	2	2	2	2	2	2	2	2	2	—	2	2	2
11	Singing	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	—	1	1	1
12	Needlework	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	—
13	Gymnastics	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	1	1	—
14	Pedagogy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	5	—
15	Shorthand	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1	—
16	Physical Geography	—	—	—	1	1	1	1	2	2	2	2	2	2	—	—	—	—	3	3	—
	Total	20	22	24	30	30	31	31	31	31	30	30	31	31	31	31	30 (31)	13	31 (33)	34 (35)	21 (23)

D.—Time Table of Ten-Class Higher Girls' School in Saxony.

—	Upper Division.								Middle Division.						Lower Division.			—
Classes	i.	ii.a	ii.b	ii.c	iii.a	iii.b	iv.a	iv.b	v.a	v.b	vi.a	vi.b	vii.a	vii.b	viii.	ix.	x.	Total.
1. Religious Instruction	2	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	42
2. German	4	4	4	4	4	4	4	4	4	4	4	4	6	6	8	8	8	84
3. French	5	5	5	5	5	5	4	4	5	5	4	4	4	4	—	—	—	64
4. English	4	4	4	4	4	4	3	3	—	—	—	—	—	—	—	—	—	30
5. History	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	24
6. Geography	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	—	28
7. Natural History	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	—	28
8. Arithmetic	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	4	4	48
9. Writing	—	—	—	—	—	—	—	—	1	1	2	2	3	3	4	4	4	24
10. Drawing	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	24
11. Singing	1	1	1	1	1	1	2	2	2	2	2	2	2	2	—	—	—	22
12. Drill	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	28
13. Needlework	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	32
Total	30	30	30	30	30	30	30	30	30	30	30	30	28	28	24	22	18	475

V. (*b*) The Curriculum

Religious Instruction is a compulsory subject in all German schools, and very great importance is attributed to it. Special teaching is provided for children of each different faith—for Evangelical, Roman Catholic, and Jewish. The aim of the instruction is clearly stated, "To bring up young people in the knowledge of God's Word; to instruct them in Holy Scripture, and to train them so that they may set a good example, may share in the religious work of the community to which they belong, and, in general, may fulfil every pious duty which falls to their lot in life." The work is carefully distributed over the whole school course, and is widely comprehensive in its nature. When possible it is arranged that the lesson in Religious Knowledge shall be given in the first morning hour. The instruction is generally given by members of the staff, but in some cases specially qualified external teachers are appointed for the purpose.

The German Language and Literature, naturally, occupy the most prominent place in the Lehrplan. Even before the establishment of public Secondary Schools for Girls, it had been acknowledged that "that most priceless possession of a nation—its own individuality in the noblest and highest sense—is best represented in its language and its literature, and that the first duty of a German school—as German—is to foster an ardent spirit of true patriotism in the young."

The Lehrziel, as defined in the Regulations for teaching German in different States, is expressed in somewhat different terms, but there are certain characteristics common to them all, which may be briefly summed up as follows:—

The aim of teaching German is

(*a*) That the children may learn to speak and to write their own language with correctness, clearness, and fluency, and free from traces of dialect.

(*b*) That they may become familiar with the chief examples of the best German literature, and with the lives of some of the greatest writers.

(*c*) That patriotism may be fostered by study of German heroic poetry and legends.

It is no wonder, therefore, that the teaching of a subject of such extreme importance should be of a very high order. The best methods are used, the result of long and careful inquiry. Very great demands are made upon the teachers, who are always among the best in the school.

From the beginning children are taught to speak clearly, to answer directly and concisely, in correct language. Very great importance is attached to reading aloud well, and the methods used in teaching have most successful results. I have heard girls of fifteen read a difficult poem of Schiller, so that to listen to them was a pleasure. Distinct enunciation and appropriate

emphasis are carefully taught. The girls first learn to understand what they read, with the result that their reading is not dull and mechanical, but intelligent, pleasant, and audible.

"Chorlesen" (reading in chorus) is brought to a remarkable pitch of perfection in many schools. It affords admirable training in every way, but is especially valuable in a large class, as it enables each member to take an active part in the lesson. It is particularly useful in language teaching. A good teacher, with a keen ear, is quick to detect the slightest inaccuracy, or want of precision, and the child who hopes that her deficiencies may be concealed by the voices of the others is soon undeceived.

The teaching of Phonetics as applied to German is very interesting, and provides a most valuable 'voice training.' I had the pleasure of hearing an excellent lesson in the Elisabethenschule in Frankfurt, where some thirty-eight little girls were diligently practising sounds from Vietor's *Lauttafel*, to their own great satisfaction. Far from being dull or uninteresting—a lesson has been seldom heard by me which the class seemed to enjoy more. These lessons are intended to remedy peculiarities of Frankfurt pronunciation, and the sounds which presented special difficulties to young Frankfurters were most practised, singly and in chorus. The children were quite free from self-consciousness, and threw themselves into their task with great energy. When a fault occurred, reference was immediately made to the *Lauttafel*, and it rarely happened that one child could not correct the mistake made by another. Verses and sentences introducing the difficult sounds were repeated, and the lesson closed with a recitation of a poem, with an admirable accent and appropriate expression.

The programme of literature in girls' schools varies a good deal, but, of course, most prominence is given to Schiller and Goethe. Lessing, too, is very much read, and I have heard excellent lessons on Uhland's ballads, and many on portions of the Nibelungenlied. A great deal of poetry is learned by heart throughout the whole school course, varied, naturally, to suit the age and ability of the pupils. Many of the older girls show a remarkable power of committing long passages to memory with great ease, and of reciting them admirably.

In most schools girls are not allowed to take notes of lessons. They listen attentively, and gain the habit of concentrating their attention so that they can reproduce at the next lesson what they have been told by the teacher.

Prosody is taught in connection with literature lessons in the senior classes, in some schools. A careful study is made of the different measures which the girls meet with in their reading, and they learn to scan the most important passages. I have heard many lessons in German Literature which might be regarded as models of the best methods of teaching this most difficult subject. The girls are taught to understand a poem, to grasp its inner meaning, to appreciate its felicity and charm of expression, and, above all, to enjoy it. It was interesting to notice how with a really good teacher, a difficult abstract poem of Schiller's was

so brought within the girls' reach, as it were, that its meaning and beauty were plain to all. It is the sacred duty of the teacher of literature to foster in his pupils a genuine love for and admiration of the subject. It is held to be among the most important means of education for girls, from the ethical and from the patriotic point of view. Not only are they to learn to know what is best and noblest in the literature of their country, but they are also to become familiar with the great writers, their personality and character.

A lesson dealing with Schiller's life will best illustrate the method of teaching this part of the subject. After the usual preliminary questions on the former lesson, the teacher began in a quiet, but most vivid and dramatic manner, to narrate the story of Schiller's flight to Mannheim, his adventures there, his hopes, fears, disappointments. His journey thence on foot to Frankfurt was traced on the map, with vivid local colouring—his weariness and depression, his humble lodging in Frankfurt, his departure for Meiningen, and the dreary winter spent there, were described with sympathy and insight. To the girls Schiller was a real human being; they sympathised with his hopes and fears; his friends were their friends, his enemies, theirs. This is but a very meagre description of a lesson which was a masterpiece of its kind.

It is hardly necessary to say that a German teacher of Literature does not use a 'text-book' in class, or refer to notes of any kind. A copy of the poem or play being studied lies open on the desk, but it is seldom referred to. The lessons are so carefully prepared that the teacher is able to give his undivided attention to the class, he speaks to them face to face, their eyes follow him, he is the point in the class-room upon which all attention is centred. This is such a striking characteristic of the good teacher that it is possible to judge of his powers before he has spoken a word, merely by watching the faces of the children. If when a teacher enters a room all eyes turn upon him, all attention is concentrated on him, if the expression of the children's faces is interested, expectant, eager, then we know we may expect a good lesson. But when a teacher is received with indifferent looks, even an appearance of boredom, we know that the children's former experiences do not cause them to anticipate the lesson with any special pleasure. Their estimate is usually right. This is quite apart from the question of discipline. Many poor teachers are very strict 'disciplinarians,' and the class behave in an exemplary manner during their lessons. But the good teacher has not to *think* of discipline—"Das versteht sich von selbst."

Higher Schools for Girls in Germany are remarkable for the very high standard of excellence not only in teaching German, but also in teaching other MODERN LANGUAGES. So much has been written upon this subject that it is needless for me to add anything. I need but confirm the praise of others. No written description can give any idea of the admirable work being done in some schools.

But—and it is a very important but—in the Reformed Methods of teaching modern languages, *all* depends upon the teacher. Moreover, even the very best and most successful teachers feel the strain severely, and cannot at all times maintain the same high level. When we consider the qualifications required to make a good teacher according to the Reformed Methods, one wonders how they are ever found combined in one person. To begin with, the teacher must be familiar not only with the language taught, but the country where it is spoken; must, in addition, speak with a good accent, and write and read the language with fluency, ease, and correctness. A special study of phonetics and the modes of teaching must have been made. For the lesson itself, in addition to the general qualifications of a good teacher, there must be found untiring energy, resource, vivacity, a keen ear to detect the slightest error, a power of varying the lessons, enthusiasm and thorough belief in the methods employed.

What is loosely designated as the 'Neue Methode' is really found in three different varieties, which, although they have some points in common, have each their own distinguishing characteristics. They are described as *(a)* the modified synthetic method, *(b)* the direct analytic method, which is also imitative, *(c)* the *Anschauungsmethode.* These all agree in making the reading exercise the central point of the lesson, and in teaching grammar inductively from it. The first attaches importance to the frequent practice of grammatical forms, and will not abandon the use of single sentences, and of passages for translation into the foreign tongue. In the second, pronunciation is taught from the beginning according to phonetic principles, and the foreign language is always used. There is practically no translation of German into French. The object is to learn French as a French child would learn it. The third is much the same as the second, but attaches more importance to the use of pictures and actual objects. By this means the language is made more real and living to the children.*

These methods are too well known now to need any detailed description. Only those who have seen them in practice can realise what a revolution is taking place in the teaching of Modern Languages in Germany, and how obsolete the usual English methods appear by contrast. The results are wonderful, and have been praised by everyone who has had any experience of them. I have heard lessons in different parts of Germany, illustrating each of these systems.

The standard of French in the upper classes in the best schools is high. Girls of fourteen or fifteen, who, as members of large classes have learned French in school only, can, as a rule, speak intelligently in French about the books they are reading, they have a good knowledge of French grammar, and

* See Miss Brebner's paper, the "Teaching of Modern Languages in Germany," and Mr. Fabian Ware's "Teaching of Modern Languages in Frankfurt a/M.," in Vol. III. of these "Special Reports" for further details on this subject.

they can write original essays in French which would do credit to much older girls. The accent and pronunciation of children who have been taught by the Reformed Methods are beyond any comparison better than is usual in the case of an English school-girl of the same age. The average of the work, on the whole, is much higher.

A great deal of attention is bestowed on learning French songs and poetry by heart. The singing and recitation of these in class is often a very charming performance.

It has been urged as an objection to the Reformed Methods that grammar is not thoroughly taught. So far is this from being the case, that I was surprised at the good knowledge of grammar possessed by children who had been learning a comparatively short time.

The teaching of English is equally good, only, since a shorter time is given to it (it is not begun till the seventh school year), the standard reached is not usually as high as in French. Two interesting lessons in English to classes who were just beginning stand out in my recollection. In one the subject was the class-room, its furniture, and the class themselves, and the girls took an active part in the lesson. One child was called forward, and questioned the others on the room and school life, furniture, books, and so on. The rest of the class answered exactly as if she was the teacher. To illustrate the English rules for the comparison of adjectives, two little girls were taken. Their respective heights, ages, and so on were 'compared' and discussed, only English being spoken. The lesson was taken very seriously, and I could see that the grammar portion of it was thoroughly understood by the children, and made a deep impression on them.

Another lesson, also to beginners, dealt with London life. Pictures of streets, the parks, river, public buildings, of people, vehicles, and so on, were looked at and discussed. Then a magazine article, with pictures of toys, many of which the children recognised, was talked over in detail. There was practically no grammar in this lesson, but the children learned many new words and sentences, and had much practice in pronunciation and English locutions. Both lessons were admirable of their kind, a marvellous amount having been accomplished in a very short time.

The Germans may well be proud of the Reformed Methods of teaching modern languages. They afford not only excellent mental discipline, but the practical results achieved are remarkable, and must be seen and heard in order to be appreciated.

The next important 'ingredient' in a German girl's education is HISTORY. For this the *Lehrziel* is "that she shall become familiar with the history of her native country, and have some knowledge of the most important events in Ancient and Modern History, so far as it has any bearing upon German History. The teacher is to strengthen and deepen by every means in his power

her love for her native country, her home, and the Rulers of the German nation; to train her so that she may understand and sympathise with life in the present day, and the tasks imposed upon her fellow-countrymen." Certain restrictions are imposed by the Government regulations on the teacher of History to girls. He is not to introduce obstruse political questions, or to give detailed accounts of wars and battles. It is desirable to arouse a warm personal interest in the great men of action, their deeds, and their lives. The *Lehrziel* of history for girls is different from that for boys. A long course is prescribed, but as it is really only done in outline, the effect of many of the lessons which I heard was disappointing, and did not come up to the expectations which I had formed. There was too much of a dry summary, too many dates, the periods to be covered were too wide. It seemed as if the work must be purely memory work. But in four instances my expectations of excellent teaching of History in Germany were fully realised. These exceptions showed that even within the prescribed limitations, work of very high order can be done. Of these teachers one was a lady, an *Oberlehrerin*, two were Directors of schools, and the other a Professor. All were quite different in style, but all four lessons were excellent.

A variation from the stereotyped methods of teaching history is found in the 'Regressive Methode,' which is used most successfully at Coblenz Higher School for Girls in the first year's History course.

Instead of beginning by teaching children ancient history or legends, Germany in the present day forms the subject of the first lessons. Here is the course for the three terms:—

1st term.—Our Emperor and his House. The War of 1870.

2nd term.—The French Revolution. Napoleon. The War of Liberation.

3rd term.—The Thirty Years' War. The Great Election. The Rise of the Prussian Monarchy.

No text-book is used; the teacher relates the story in an interesting manner, and at the next lesson the children repeat what she has told them. The children are very much interested, and altogether the system seems to have most satisfactory results.*

It is perhaps worth mentioning that in teaching history large historical wall maps of unvarying excellence are used at every stage, and on every occasion, and that in the senior classes in many schools the teaching of history and geography to a large extent goes hand in hand.

It is well known that the teaching of GEOGRAPHY in German schools is excellent. Whatever the particular method adopted the work is good. In the early stages, especially

* I am indebted to the courtesy of Herr Direktor Dr. Hessel and to Frl. A. Linck for the above details.

when studying *Heimatkunde*, drawing (or the Constructive Method) is thought best. The child sees the map growing on the blackboard and copies it. Talking and drawing are combined, but drawing is the chief means of teaching. The amount of drawing, however, to be done by the child has been limited by the Prussian Regulations, so as soon as the first difficulties are overcome, the wall map comes into use, and is the chief vehicle for instruction henceforward, drawing being only an auxiliary, of which the teacher makes use when he wishes. Relief maps are largely used, and in the more advanced stages, when Physical and Mathematical Geography are being studied, there are bountiful supplies of the best possible maps, charts, and appliances for the purpose. No text-book is, of course, used in teaching the junior classes. It is permissible to use one from the 5th class upwards, but I do not recollect having ever seen one. The map is considered the chief instrument for teaching, a book is only of minor importance.

Opinions seem to differ as to the best method in which Geography should be taught: whether *synthetic* (*i.e.*, beginning with what is most familiar, gradually extending the child's knowledge to other countries), or *analytic* (*i.e.*, beginning with the geography of the earth, taking it in parts, and coming down to the native land of the pupil last), or *concentric*. A combination of the two first methods is found to produce the most satisfactory results.

The work done in ARITHMETIC by girls is not so advanced as that done by boys. Again we find a certain amount of restrictions imposed by the official Regulation for teaching the subject. It is considered desirable that girls should have a good knowledge of Commercial Arithmetic (of whatever, in fact, would prove most useful to them afterwards in ordinary life), and that they should be carefully trained in Mental Arithmetic. But it is not supposed that anything more is necessary for them, or that even the beginnings of higher mathematics would be desirable.

So far as it goes, however, Arithmetic is admirably taught in girls' schools. The children calculate with remarkable quickness and accuracy, and understand their work most thoroughly. Very little home work is given in comparison with English schools. Most of the work is done in class, and far more of it is oral than written. If new work is taken, all difficulties are explained away by the teacher before the pupil begins; she is never left to puzzle over it alone. That would be quite opposed to the spirit of German teaching.*

DRAWING is not begun until the fifth school year, and then two hours a week are usually given to it. The *Lehrziel* is as follows:—"To train the pupil to judge accurately of size and direction in plain figures, and simple solid objects. To enable her to reproduce and alter certain given symmetrical figures,

* See Appendix III., for note on Science Teaching.

especially plaster ornaments. To form a correct estimate of the outline and shading of simple solid objects." The work is not of a very interesting nature, and it cannot be said that the educational value of the subject is looked at from quite the same standpoint as in English schools. Still, extremely good work of its kind is often done; at one school especially I saw a most interesting collection of drawings and paintings by the pupils, many of which had great merit.

NEEDLEWORK is considered indispensable for girls, and is compulsory throughout the school. The children are very carefully taught, and learn to stitch and make plain garments with extreme neatness. Two hours a week are given to it throughour, in most schools. It is always designated as HANDARBEIT.

The GYMNASIUM (*Turnhalle*) is an important department of every fully equipped school. The younger children are taught very simple exercises, combined with singing and games, but the work grows more difficult afterwards, and some good gymnastic exercises are included in the programme. While the gymnasium itself and apparatus are superior to what are usually found in an English High School, the methods of teaching and the exercises do not seem quite so admirable, either for the purpose of physical training, or from the educational point of view. In most schools the girls wear their ordinary dress instead of a more suitable gymnastic costume. There are, however, some exceptions to this rule, for example, the Higher School at Unterbarmen. The subject is generally taught by a fully qualified mistress, who also wears her usual dress.

An effort is being made to introduce a system of outdoor games into some girls' schools. Mistresses are being especially trained for the purpose, and certain afternoons are set apart when the children meet for games, attendance being voluntary. I was given an opportunity of being present at one of these *Spielstunden*, when some 150 girls played games in groups under the supervision of mistresses. Skipping, 'Schlagball' and a game played with rings and sticks, seemed most popular with the older girls, the little ones playing ordinary children's games. This was in the school play-ground, but in summer the children are sometimes taken out to the woods, where they have more scope for their energy. Many schools have acquired the use of fields, or grounds of some kind, where the children go on appointed afternoons. All this marks a great advance on the opinions of even a few years ago. But there is nothing in Germany, as yet, to compare with the well-organised games club of an English girls' school, nor does the value of 'combined' games seem to be fully appreciated by Germans. Much more attention is being paid to the health of school-girls now than formerly, and in order to counteract the effects of overwork, they are often encouraged by their teachers to take walks, cycle, skate, and play tennis if possible. Only those who know how little

importance was attributed to physical exercises for girls a few years ago can appreciate how remarkable a revolution is taking place at present.

V. (*c*) The Organisation

The present organisation of the fully equipped Higher School for Girls is very clearly defined. In the majority the programme of studies is arranged to cover a period of ten years. Many of those whose compulsory course is for only nine years have an extra optional class for girls who have completed the full course. The number of the Staff is determined by the size of the school; so many pupils, so many teachers.

In Prussia the limit of school hours per week is fixed at thirty. It is not expected that any teacher shall teach for the full number of hours; on the contrary, no one can be required to give more than a certain number of lessons per week, varying according to subject and class from twenty to twenty-six, the latter number being seldom exceeded.

The size of the classes varies somewhat. The outside legal limit is forty, but it is unusual to find so large a class. When necessary, parallel divisions are formed. In some of the larger schools the classes work in two, or even three, parallel divisions, the standard of work in each being the same. All subjects taught in each class are compulsory.

The order in which the lessons are given is carefully planned, so as to ensure as much variety as possible in the morning's work. Although according to the Prussian Regulations the number of lessons for each class each week is fixed, the arrangement of the hours for lessons may differ. Many schools have all the lessons during morning hours (eight to one o'clock, or, in summer, from seven to twelve o'clock), while others prefer to divide the work so that a portion of it will be left until the afternoon. This is the rule in Baden, for example, where the weekly number of lessons is, however, somewhat larger than in Prussia. There is no weekly holiday, but certain afternoons are always free, and where there are longer morning hours, all afternoons are free. The arrangements for vacation differ in different parts of Germany, according as the summer vacation falls in July, or later. In the former case there is generally an additional fortnight in autumn. The total vacation in the year is from ten to eleven weeks.

The school year in Prussia and North and Central Germany begins at Easter, when new pupils are received. In Baden, Bavaria, Alsace-Lorraine, and Würtemberg, September is the first month of the school year.

The length of a lesson is usually fifty minutes, sometimes only forty-five. At the end of each lesson there is a *Pause* of ten minutes, during which the children leave the class rooms, and in fine weather go out of doors to play. No work of any

kind is allowed during the *Pausen.* At the end of the second morning lesson there is an interval of at least fifteen minutes, and if there are five lessons in the morning, there is a pause of the same length after the fourth lesson. Therefore, if a child has spent five morning hours in school, about fifty minutes of that time will have been given up to recreation.

The hours of preparation are also regulated by law, so that children shall not be overworked. For the *Unterstufe,* at most, one hour; for the *Mittelstufe,* one and a half hours; and for the *Oberstufe* two hours a day is the limit assigned. The Staff of each school are required to see that these limits are not exceeded.

The beginning of the school year is not only the time for the entrance of new pupils, but also for promotion from class to class. The work of each class is arranged for one year, and it is expected that the task appointed will be accomplished by each member of it during that time. If a girl is not pronounced ready for promotion, she must remain a second year in the same class.

Each pupil has her own *Zeugnissheft* (Report Book), in which a record of her work and conduct during the term is kept. This is duly filled up by the teachers at the end of term and sent to the parents for their inspection and signature. It is brought back to school at the beginning of next term, and is kept in the archives.

There are practically no 'punishments' in a girls' school in Germany. The system of discipline is in some respects strict, and the teachers are usually quite equal to the task of enforcing good conduct and good work without a fear of penalties to aid them. In extreme cases, however, a girl may be 'kept in' for a certain time, under the supervision of some authorised person. The parents must be informed beforehand of the intended punishment, and under no circumstances can a child be 'kept in' during the mid-day period between morning and afternoon school.

Written impositions, or lessons of any kind as a punishment, are strictly forbidden. Nor can holiday tasks be imposed. Limitations are also fixed not only as to the amount of time to be given to home work, but as to the nature of work set. For example, drawing of maps, or drawing of any kind, is not permitted. The memory work is very carefully arranged, in order that the memory may be trained, while in no way overburdened. Essays on literary subjects must not exceed a given length, duly appointed by the teacher.

There are no examinations, as understood in England, in German girls' schools. The yearly promotion from class to class is determined upon by the Staff in conclave, where the work and ability of each pupil is minutely discussed. In some States, but not in Prussia, we hear of a 'public' examination which is held in spring, in the presence of the parents, where the children are questioned orally by the school Inspector or teachers, but I am not aware that much importance is attached to this.

There is nothing in the nature of a 'leaving examination,' no definite goal to be attained in the girls' school. The absence of such external stimulus renders the task of the teacher still more difficult. All secondary schools for boys have their 'leaving examinations,' the passing of which entitles the pupil to certain privileges, and opens up the way to his future career. But girls cannot serve in the army, they do not want to qualify for public appointments, therefore, it is argued, there is no object in having a 'leaving examination' for them. All depends on the personality of the teacher. It is needless to say there is no system of 'marks' or prizes in a German school, nor is it deemed desirable or necessary to encourage a spirit of rivalry or competition of any kind among the pupils. To do this would be opposed to the whole spirit of German education. *The work is for work's sake, for the honour of it, for the pleasure of it, not for hope of incidental recompense.* To associate artificial prizes or rewards with education in a child's mind would be to degrade the noble ideal.

A record of the work done in each class is kept in the Class Book. This contains the printed form for each day, ruled in columns, under the headings:—

Hour; Absent; Late; Subject; Teacher; Work given up; Work accomplished; Work for next lesson.

This is carefully filled in and signed by each teacher after each lesson, and presents an accurate record of the work of the class as a whole. It is, of course, always subject to inspection by the school authorities and by the governing body.

In addition, each teacher possesses a book, in which he keeps his own record. An excellent one for this purpose is that published for the members of the Deutsche Verein für das höhere Mädchenschulwesen, containing the Time Table, yearly calendar, memorandum book, dates of vacations, class lists, addresses of pupils, besides a short directory of the Higher Girls' Schools in Germany.

The supervision of pupils outside school cannot, naturally, be so strict as in the case of boys, but there are certain rules to which all parents are expected to conform. Attendances at public dancing classes or balls is forbidden to girls who are still at school. Very often the Jahresberichte of the schools contain notices to parents requesting that the children shall return punctually to school, and that leave of absence shall not be asked for on any pretext, except that of serious illness. The rules for punctual and regular attendance seem to be strictly enforced, with very satisfactory result.

Many Directors regret that there is so little intercourse between the parents and the schools. Entertainments for the pupils are by no means as common in Germany as in England, and the parents have comparatively little opportunity of seeing or knowing what is done in school.

A child begins to attend school when she is six years old, and for the next nine or ten years (if she remain so long) the

parents have practically no voice in her education. Unless something goes wrong, it may happen that a parent for years does not see the Director. He is absolute and supreme in all matters connected with school. It rests with him to grant extension of holidays, leave of absence, or remission of lessons—for which a doctor's certificate is required. There is no choice of 'subjects.' The prescribed course must be gone through in the regular routine, occupying a certain number of years.

The fees charged are extremely low, ranging, according to the province or town, from about 60m. (£3) a year in the *Unterstufe*, to about 180m. (£9) in the *Oberstufe*—this latter sum representing the upper limit. The fees are not arranged on the same scale in every school, but the average might be taken as something between the above-mentioned sums. The charges for Seminar classes are usually rather more, but still are exceedingly low according to English standards.

A German public school is never regarded as a business undertaking, expected to pay so much on the capital expended. On the contrary, the fees seldom pay for the cost of the school, and must be supplemented from public sources, whether government or municipal, as the case may be. This is a matter of course. The Director of a school with 700 pupils will announce in his yearly Report that the expenditure has exceeded the receipts by some £2,000.

The German parents value highly the privilege of very cheap and very good secondary education for their children. They are proud of the excellent reputation of their schools, and as the advantages are so largely on the side of the public, the Directors are seldom troubled with groundless complaints.

A very charming feature of German schools are the excursions made in summer by the classes, accompanied by their teachers. Delightful expeditions to places of historic interest, or to lovely country, give opportunities for agreeable intercourse between teachers and pupils, and are remembered with pleasure for long afterwards. It is hardly necessary to say that such expeditions are well organised and well carried out. Are we not in Germany?

V. (*d*) The Staff

The variety in the authorities to whom the secondary schools for girls in Germany are subject, is an indication that their official status has not yet been universally and finally resolved upon.

A large and increasing number are under the authority of the *Provinzial-Schulkollegium* (as are the Secondary schools for boys); others are directly under the *Königlichen Regierungen* of the province in which they are situated; others are either under the *Kreisschulinspektion*, or the municipal *Schuldeputation*.* Private schools are under either of the two latter authorities.

* See Appendix I. Also § III. above.

The control and management of Public Secondary Schools for Girls rest chiefly, as has already been said, in the hands of men. The *Lehrerkollegium* (Staff) consists of

(*a*) the Director, who has usually had an University education;

(*b*) a fixed number of *Oberlehrer*, also, as a rule, University men;

(*c*) a fixed number of *Lehrer*, who have had a Seminar training;

(*d*) one, or two *Oberlehrerinnen* (in Prussia);

(*e*) a fixed number of *Lehrerinnen*. Some of the latter may teach special subjects only, such as Gymnastics and Needlework.

In Baden the qualifications of the staff are more definitely stated. Including the Director, there *must* be *three* men who have had a University education, and in addition two Reallehrer, as well as the proportionate number of certificated Lehrerinnen. The staff is increased according to the needs of the school.

It can no longer be said that teaching in the *Oberstufe* is monopolised by men. On the contrary, as women show themselves qualified, they are taking a more important position in the Higher Schools, and sometimes teach throughout the School, in the principal subjects. In some *Seminare*, too, part of the Higher teaching is now in the hands of women.

The *Lehrerconferenz* is a characteristic feature of German schools. At certain times the staff meet in conclave, and the affairs of each class are exhaustively discussed. The meetings are, as a rule, carried out in a formal and business-like manner, and everything that is important for the welfare of the school is reported upon. As the Director has often a great deal of teaching to do, it would be quite impossible for him to keep in touch with his (perhaps) 700 or 800 pupils, but for these meetings. The friendly relations which exist between members of the staff, and their confidence in each other, is, especially in some schools, very marked indeed. There is a strong feeling of *esprit de corps*, and they appear to work together most harmoniously. The general organisation and curriculum of a school are prescribed by the Official Regulations. But the working out of all the details rests with the members of the Staff. This task once accomplished, their recommendations are submitted to the governing authority for approval.

Each class is assigned to the care of a special *Lehrer* or *Lehrerin*, whose position is much the same as that of the English Form Master or Mistress. Under the new Regulations one class at least in the *Oberstufe* must be given to an *Oberlehrerin*. These *Klassenlehrer* are responsible to a large extent for the conduct and welfare of their pupils, but as a general rule there is not that minute attention to discipline and tone which characterises the best English girls' schools. The regulations of the Sophienstift at Weimar require that a lady shall be in charge of each class, and she is solely responsible for it. She must be present when the children arrive in the morning, and at other

times, if she is not herself engaged in teaching elsewhere she remains in the room during lessons.

The Director of a girls' school is an important public official, and his authority is fully recognised as such. Although practically an absolute ruler within his own dominion, he is responsible for his actions to the governing body, whatever it may be, under whose jurisdiction the school is placed. For example, a Director cannot appoint or dismiss the members of his staff; nor can he of his own authority expel a pupil. He cannot at will introduce a new school book, or a new method of teaching.

Detailed Annual Reports (*Jahresberichte*) are drawn up by the Director, giving a definite statement of the position of the school, the staff, curriculum, number of pupils, books used, organisation, and the chief events of the year. These are printed and circulated among the parents and those interested in the school, and form an invaluable record of the work accomplished and the development of the school. Moreover, the Director has to report to the authorities concerned upon everything referring to the school.

In every way the position of the Director of a Higher School for Girls is an honourable one. To occupy the post, as a matter of course, he must be a man of irreproachable character and distinguished attainments. His attitude towards the other members of the staff is that of friend and adviser, rather than merely of superior and critic. Being himself a highly skilled and experienced teacher and a good organiser, he inspires respect and confidence in all with whom he is in contact. He fulfils his own duties (and they are very numerous) punctually and conscientiously, and he expects that others shall do the same. He is, as a rule, regarded somewhat with awe by the children, who look on him as a superior being. Still the relations are often very charming and friendly on the side of the girls, as I have had many opportunities of noticing. While in the best schools in these days the *Lehrer* and the *Lehrerin* stand, in theory at least, practically upon the same footing, there are some departments which are especially for women teachers. Notably, of course, *Handarbeit*, without exception, and Gymnastics—in the *Oberstufe*, at any rate. Sometimes, but rarely, Gymnastics in the junior classes is taken by a *Lehrer*. Drawing, too, is largely taught by women, though they have no monopoly of it. Sometimes there are special teachers in a school for these subjects alone; in other schools they are divided among those ordinary teachers, who possess the requisite qualifications.

The position of a mistress in a Higher School for Girls has advantages which help to compensate for the great severity of the work. The staff is large, and supervision of the girls outside the class rooms is so arranged that much less falls upon the individual teacher than would usually happen in an English school. A mistress arrives in time to give her lessons; that is as a rule sufficient. She may have to take *Andacht* (Prayers) on certain mornings, or may be responsible for good order in the playground or passages during the *Pausen* at appointed times

but, as a rule, no more is expected of her. The intervals between lessons are intended as much for teachers as for pupils, and, except the small number required for supervision at these times, the rest of the Staff are free.

Outside school the teacher has nothing to do with her pupils, and in school her connection with them is limited to giving lessons. There is much less personal intercourse between teacher and pupil than is usual in a girls' school in England.* There are none of the clubs or societies regarded as such an important part of English school life. The classes are large, and the strain of giving lessons, as they are given in Germany, is very exhausting; the correction of exercise books, too, must be accurately and thoroughly done, in a certain way, at a certain time. Every lesson must be carefully prepared, no matter what the subject. In fact it may be said that the hardest part of the school work is done outside school.

At any hour, on any day, classes are liable to inspection. It may be the Director, who keeps a careful watch over the work being done in his school, or the *Schulrath* who comes in to hear the lesson. No notice is taken of the presence of a visitor; the work must go on as usual.

Still the position of a mistress in a Public Secondary School has marked advantages. Once regularly appointed (*angestellt*) to a permanent post she is settled for life. She is sure of her post as long as she is able to occupy it, and in case of illness or old age will be granted a pension. She is in fact a "civil servant," a member of an honourable and honoured profession, with a recognised position.

The salaries seem low to English notions, but the certainty is a distinct gain. Also Germans live in a more simple style than English do, and the income which would mean poverty in England, goes far in the hands of a wisely economical German.

The rule limiting the number of lessons required from a teacher applies, of course, to women, so that when they are appointed to a post they know exactly what will be demanded of them. It is true that in the case of illness of one member of the staff the others are expected to fill up the place, each giving up free hours to do so. But even this is in a mistress's favour, as she knows that if she falls ill her work will be undertaken by colleagues, and neither will she have to pay for a substitute nor will she run the risk of losing her post.

V. (*e*) The School Building

As might be expected in Germany, very great importance is attached to the School Building. Strict regulations are laid down which cannot be evaded. To build a day-school for seven or eight hundred girls, combining the maximum of excellence with the minimum of cost, is a serious problem. But when a question

* Cp. § IX. below

of health and fitness arises, then expense is of secondary consideration. The buildings, especially those of the newer type, have a dignified and fitting appearance. The site is carefully chosen from the point of view of health and convenience. There is a large, well-gravelled playground, generally planted with trees at short distances apart. It must be remembered that shade is a matter of importance in the hot German summers. For this reason, in the newest and best-planned buildings, the classrooms, as a rule, face the north. The best authorities on school hygiene think an equal distribution of the light not practicable otherwise. The great corridors face south, fully exposed to the sun's rays, with the class-rooms opening off them.

Artificial light is used as little as possible. In some of the newest schools electric light is provided, the lamps being high up, and arranged so as to produce the effect of daylight.

The arrangements for heating vary. Some of the older schools have gas stoves, which are not at all satisfactory. The new buildings are provided with the best and most modern heating apparatus, so that the temperature can be regulated at will. A thermometer hangs in every class room in Germany, and it is part of the duty of the teacher present to see that a certain temperature is maintained. Rules for opening windows and doors at specified times are strictly kept. The problem of ventilation seems to have been satisfactorily solved in at least two of the newer schools which I visited.

Each school building *must* have a separate class room for each class. The notion of teaching two, or more, classes in one room would not be tolerated in Germany. There are also rooms for Science Teaching, Drawing, Needlework, Singing, and a large gymnasium. Separate sitting rooms for the *Lehrer* and *Lehrerinnen* are provided, as well as the Director's office and the waiting-room. A good library is also an important feature in every school.

The cloak-room arrangements are generally more primitive than those in English schools. Hats and cloaks are often hung up in the class rooms, but, as a rule, rows of pegs are provided close to the class-room doors, in the corridors, and here outdoor garments are left. Shoes are not changed on coming to school—the same boots or shoes are worn all day, in school, in the playground, and even in the gymnasium. The playground is a most important addition to the school, as it is used after every lesson when the weather is fine. At the Viktoriaschule in Darmstadt, and at the Dorotheenschule in Berlin, there are tennis courts which are very popular with the girls. The Viktoriaschule has a Botanic Garden also as an accessory to the school.

As a matter of course the school furniture is good everywhere, but the highest excellence is attained in the newest schools, where every modern improvement is to be seen. Desks are usually made for two pupils; the latest model seems as admirable as can be designed for the purpose.

Class rooms are generally rather lacking in decoration, though

in many schools interesting photographs, or engravings of famous cities or public buildings, adorn the walls. At the Weimar and Darmstadt schools a number of very beautiful photographs of famous pictures hang in the corridors or class-rooms. Everyone knows that German school-accessories of all kinds are the best in the world. The girls' schools are no exception to the rule. They are most generously supplied with everything that ought to be found in a well-furnished school. The relief maps are especially remarkable — one of Darmstadt and neighbourhood, and another very fine reproduction of the Lake of Constance and surrounding country, the water being represented by glass, while the course of the Rhine through the lake was clearly indicated, were the best I have seen.

The newest map-stands are provided, as well as ingenious contrivances by which maps are suspended from the ceiling. There are black boards of every degree of excellence, sliding and reversible, or fixed up on the walls of the room; in fact, everything is as good as can be had of its kind.

The Gymnasium (*Turnhalle*) is always well supplied with apparatus deemed suitable for girls. Ladders, swings, parallel bars, and whatever else is necessary, are liberally supplied. Sometimes the gymnasium, if very large, has to do duty also as an assembly hall (*Aula*), and school gatherings of every description are held in it.

But there is generally a large and imposing Aula for use on state occasions. This room is richly decorated, according to German taste, and has busts of the Emperor and Royal family in conspicuous positions. Fête days, such as the Emperor's birthday, are celebrated by assembling in this hall. The Director or one of the Professors gives an address to the children, and patriotic songs, or hymns suitable to the occasion, are sung.

There is no doubt that every stranger who visits a German school, and especially one of the newer type, is most favourably impressed by the hygienic excellence of the building, the ranges of class-rooms for special subjects, admirably equipped, and the ample supplies of teaching apparatus. When we reflect that everything connected with staff, teaching, and organisation is of equally high merit, it is easy to understand why German schools are famous throughout the world.

VI. The 'Mädchengymnasium'

The 'Mädchengymnasium,' strictly speaking, does not yet exist, though the word has often been vaguely used by English and American writers. There are 'Gymnasialkurse' and 'Gymnasialabteilungen,' but there is *no* 'Mädchengymnasium,' in the German sense of the word, as yet. As every one knows, a 'Gymnasium' in Germany means a public classical school for boys, the leaving examination of which, when passed, entitles them to matriculation and all the privileges of the University. Women who seek admission to the Universities (as 'guests') and to the learned professions, in order not to be at a serious disadvantage, must have had a previous training at any rate

closely resembling that given to boys at a Gymnasium. We have seen that the Higher Girls' School does not give them that training. So in order to remedy this deficiency in public secondary education for girls in Germany, the following 'classes' or 'branches' have been established.

In 1893, the 'Gymnasialkurse' for girls were started by the "Vereinigung zur Veranlassung von Gymnasialkursen für Frauen," in Berlin. These classes are for girls of fifteen and older; they are held in the class rooms of the Charlottenschule, and of these Fräulein Helene Lange is the Principal. Others soon followed. In 1894 the 'Gymnasialkurse' at Leipzig were begun, in 1898 the classes at Königsberg, and in 1899 at Hannover. Those at Königsberg form a 'Gymnasialabteilung,' for girls of fourteen, and were established in connection with a private school by the Association "Frauenbildungsreform." In Karlsruhe there is also a 'Gymnasialabteilung,' which is a branch of the public Higher Girls' School, for girls of twelve. A similar arrangement has just started at Stuttgart, but at present there is only one class. A request to be permitted to open 'Gymnasialkurse' for girls in Breslau has been refused by the Government.* Plans are being discussed for the formation of a 'Mädchengymnasium' in Köln, and, latest of all, at Frankfurt-am-Main, where, if newspaper reports are to be trusted, a request for permission to establish one has already been sent in to the Government.†

I propose to give some account of the institutions of which I can speak from personal knowledge, the 'Gymnasialkurse' at Berlin, and the 'Gymnasialabteilung' at Karlsruhe. It will be seen that the 'Gymnasialkurse' differs in one important point from a 'Gymnasialabteilung.' The former is intended for girls who have *completed* their course in the Higher School, or who have done equivalent work. The latter is *parallel* with the higher division of the Higher Girls' School.

Opinions differ as to the age at which a girl should begin classical work. In Berlin and Leipzig the authorities think that she should have reached an age at which she can judge for herself—can choose her own career. It is deemed important that she should have a voice in it, and that it should not solely be for her parents to decide, as is the case with a girl of eleven. On the other hand it is considered very difficult for a girl in *four* years to reach the same standard as a boy who has devoted nine years to preparation for the University. If the classes were large, and the average of ability low, this would doubtless be true. But the classes are comparatively small, so that each pupil receives a large share of the teacher's attention. Moreover, only girls of exceptional ability enter; they are eager students, devoted to knowledge for its own sake. Another point worth mentioning is that these girls have done

* I beg to acknowledge the kindness of Frl. Gernet, Ph.D., who furnished me with several particulars respecting the establishment of 'Gymnasialkurse.'

† Herr Schulrath Dr. Lüngen informs me that the consent of the authorities has been received. Candidates for entrance must have completed their full course at a Higher Girls' School.

more work in Modern Languages than most boys of the same age, so that when they enter upon the 'Gymnasialkurse' they are free to give more time to those subjects which are new to them—Classics and Mathematics—than is usually required. Whatever may be the opinions, the result as seen in Berlin is perfectly satisfactory. Excellent work is done by the girls. Since 1896 candidates have presented themselves for the 'Reifeprüfung' held by the 'Prüfungskommission des Königlichen Luisengymnasiums,' and elsewhere, every year, with unvarying success. Previous to last Easter, fourteen students had passed the required test. Of these, eight have devoted themselves to the study of medicine, four to philology, and two have married.

To all young men who have passed the 'Reifeprüfung' of a Gymnasium the right of 'Immatriculation' at a University, with all its attendant privileges, is granted. But though women students have fulfilled all the conditions necessary for 'Immatriculation,' the *right* is withheld from them. Although they possess the same qualifications as young men, the women students must ask for permission to attend lectures as *Hospitantinnen*, and in each case the right of granting permission rests with each individual Professor. A young woman cannot, therefore, *choose* (as a man does) what lectures she will attend She can attend only the lectures of those professors who give her leave to do so. But though theoretically the position is unsatisfactory, in practice no real inconvenience is felt. Over and over again I have heard of instances of the extreme generosity and helpfulness of the German professor to his women pupils. A book might be written on this subject alone. To return, however, to the Berlin 'Gymnasialkurse.'

In order to enter, a girl must have completed her fifteenth year, and must pass an entrance examination, to show that she has finished the full course, in a fully equipped Higher School for Girls (or its equivalent). The plan of study is arranged for four years, beginning in October of each year. There are four classes, *Unterkursus, Mittelkursus, Oberkursus B, Oberkursus A.* One year is spent in each class, each year being divided into two terms. The classes are held, in afternoon hours, as already mentioned, at the Charlottenschule, in Steglitzerstrasse. The teachers are highly qualified, and specially chosen for the purpose, some of them from the boys' 'Gymnasien,' while others are distinguished women teachers.

The programme of work and lessons is as follows:—

Unterkursus

Winter Term: German, two hours; Latin, six hours; Greek, four hours; French, two hours; Geography, two hours; Natural Science, two hours.

Summer Term: Latin, four hours; Greek, three hours; History, two hours; Mathematics, four hours; other subjects as above.

Mittelkursus

Winter Term: German, two hours; Latin, four hours; Greek, three hours; French, two hours; History, two hours; Geography, two hours; Physics, two hours.

Summer Term: Religious Instruction, two hours; other subjects remain the same, except that Geography is discontinued.

Oberkursus B

Winter Term: Religious Instruction, two hours; German, two hours; Latin, four hours; Greek, three hours; French, two hours; History, two hours; Mathematics, four hours; Physics, two hours.

Summer Term: Latin, five hours; Greek, four hours; other subjects remain as before.

Oberkursus A

Religious Instruction, two hours; German, two hours; Latin, five hours; Greek, four hours; French, two hours; History, two hours; Mathematics, four hours; Physics, two hours.

Last Easter the number of students in each class was:—*Unterkursus*, twenty-four; *Mittelkursus*, twenty-six; *Oberkursus B.*, ten; *Oberkursus A.*, six; total, sixty-six. The falling off in the number in the higher classes is attributed to the fact that, on account of the uncertainty of the regulations at German Universities hitherto, students have left before the completion of their course, and have gone to study in Switzerland or elsewhere. With the improvement of the regulations for the admission of women to Universities, and greater stability, there is no doubt that all students will find it best to remain until their course is finished.

As said before, excellent work is done. I was especially struck by a lesson in Latin composition which I had the pleasure of hearing. The passage for translation into Latin was by no means easy, involving, as it did, knowledge of difficult idioms and grammatical rules. The class had been learning Latin less than two years, but had reached a high standard of excellence in that time. Not only correctness, but elegance of style, were insisted upon by the teacher. No slipshod phrase or inaccurate sentence was allowed to pass. The girls were perfectly familiar with their grammar, and possessed a vocabulary which seemed remarkable in such young students. It is hardly fair to make comparisons where the methods and aims of teaching are so different, but the standard of the work done might be illustrated for English readers by saying that the class possessed sufficient knowledge to answer well on a difficult Cambridge Higher Local Examination paper, and that most of them would certainly have gained 'distinction' in Latin prose. This seemed to me a most creditable result after less than two years' work.*

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* I wish to acknowledge the courtesy of Frl. Helene Lange, who kindly permitted me to see the work done in the 'Gymnasialkurse,' and furnished me with full details on the subject.

In 1894 the 'Gymnasialkurse' at Leipzig, founded by the 'Allgemeine Deutsche Frauenverein,' were started, and are going on most successfully. There are now about sixty-one pupils attending the classes. The school year begins at Easter. The conditions for entrance are the same as at Berlin, but the course is arranged for four and a half years. The work done strongly resembles that at Berlin, only that more time is given to Latin: from six hours a week in the Lower classes to eight hours a week in the Upper. The time for Greek ranges from five to six hours a week, and for Mathematics four to five hours. Religious Instruction is obligatory throughout. The first group of candidates for the 'Reifeprüfung' were admitted to the examination at the 'Königlichen Gymnasium' at Dresden last September, and all were successful. In these examinations it must be remembered that the girls have accomplished the same amount of work as the boys, and have reached the same standard, but they have spent a shorter time over it, and they are examined (as at Berlin) in unfamiliar surroundings, by examiners who are strangers to them.*

In 1893 the society "Frauenbildungsreform," of Weimar, obtained permission from the local authorities to open the junior class of a 'Mädchengymnasium' at Karlsruhe. Instead of corresponding to the *lowest* class of a boys' Gymnasium it was thought better to begin with *Untertertia* (*i.e.*, the lowest class of the middle division). Each year, it was hoped, an additional class would be formed, so that in 1899 the pupils would be ready to present themselves for the 'Reifeprüfung.' Girls of twelve years of age, who had passed through the two lower *Stufen* of a Higher School for Girls, were eligible for entrance. Though called *Untertertia*, the class was not quite the same as that which corresponds to it in a 'Gymnasium' for boys. The girls had to *begin* Latin and Mathematics, so Greek was postponed for another year. On the other hand, they were more advanced in French than boys of the same age.

The 'Mädchengymnasium' (or fragment of it, so-called) grew steadily for some years, but in 1897, for reasons too complex to enter into, it was taken over by the municipal authorities, and was incorporated as a division of the Higher School for Girls at Karlsruhe, being made parallel with the *Oberstufe* of the school. In its present organisation it resembles closely the latest model of the 'Reformgymnasium' for boys. As now constituted the 'Gymnasialabteilung' consists of four classes, as follows:—

Untertertia (average age, twelve). Subjects, and number of lessons per week: Religious Instruction, two hours; German, three hours; Latin, ten hours; French, three hours; History, two hours; Geography, two hours; Mathematics (Elementary

* I am indebted to Frl. K. Windscheid, Ph.D., the Principal, for the above information.

Algebra and Geometry), four hours; Natural History, two hours; Drawing, two hours; Gymnastics, two hours. Total lessons per week, thirty-two.

Obertertia (average age, thirteen). The same subjects with more extended course, and the same number of lessons.

Obersekunda (average age, fifteen). Subjects: Religious Instruction, two hours; German, three hours; Latin, eight hours; Greek, eight hours; French, two hours; Roman History, two hours; Mathematics, three hours; Natural Science, two hours; English, one hour (optional); Drawing and Gymnastics, three hours. Total, thirty-three—thirty-four hours.

Oberprima (average age, seventeen). Religious Instruction (including Church History), two hours; German, three hours; Latin, eight hours; Greek, eight hours; French, two hours Modern History, three hours; Science, two hours; Mathematics, four hours; English, one hour (optional); Gymnastics, one hour. Total, thirty-one—thirty-two hours.

The work of the 'Gymnasialabteilung' is carried on in a building adjoining the Higher School for Girls, and is under the control of Herr Hofrath Dr. Löhlein, the Director of the school. The special charge of the department is in the hands of Fräulein Gernet, Ph.D. of Heidelberg, who teaches some Mathematics and Science. The other teachers are men, specially appointed for the purpose, some from the boys' 'Gymnasien.' The teaching is of a very high order. I have never known such good work done by such young pupils. It is true the classes are small and the girls unusually industrious; still, that would hardly account for the excellence of the work. It was hard to believe that the *Untertertia* had been learning Latin only six weeks when I heard them having a lesson. The accuracy, clearness, and certainty of their knowledge spoke much for the good teaching they had received, and the excellence of the methods which made such results possible in so short a time. Their pronunciation and reading were admirable. The same remarks apply to the Greek lesson in the *Untersekunda*, where, for the first time in my experience, I heard German girls learning Greek. They were translating some fairly difficult Greek prose and answering questions in grammar arising from the text. The *Oberprima* were reading Horace, the Epodes. The lesson began with questions on the substance and meaning of the work they had prepared. Then they read aloud, some of them extraordinarily well. The translation into German came last, very fluent and free from awkwardness. The class had been studying Horace's life, and were now going to read some of the Satires. They began Book I., Sat. vi., and translated at sight with considerable fluency. They were extremely sure of their back work, gave quotations in reference to passages which were asked for, and showed the utmost interest in the lesson. The *Obertertia*, after one year's study of Latin, had reached the stage we associate as a rule with four or five years' work. The same excellence was noticeable in the Mathematical lesson in the junior class in which I was present. They were doing fractions in

algebra, and their methods were concise and clear, their answering prompt and accurate.

It is hardly fair to compare the work of classes taught as these are with that of average English girls in a High School. These girls are exceptionally clever, and they are being taught Classics and Mathematics under the same conditions as boys in a first-rate school, and by as good teachers. It is interesting to see that when girls are given an opportunity for higher studies in Germany no half measures are adopted. If this work is to be done at all it must be done well.

Not the least interesting part of the 'Gymnasialabteilung' at Karlsruhe is the *Internat* (boarding-house), under the control of the Society 'Frauenbildung-Frauenstudium,' where several of the girls live who attend the school. The fees are very low, but all the arrangements are good, and time is allowed for the girls to study under favourable circumstances. The first group of girls who have gone through the full course (six years) at Karlsruhe, passed their 'Reifeprüfung' at the 'Gymnasium' for boys last summer.

There is still much opposition on the part of many of the Directors of the Higher Schools to the establishment of 'Mädchengymnasien.' Several even of those who desire a more liberal education for girls, fear the effect of overstrain and the evil of working with an examination in view. At the Conference of the Verein für das höhere Mädchenschulwesen, held at Hildesheim, in October, this question gave rise to a long discussion. The Director of an important school, Dr. Wespy, of Hannover, read a very interesting paper on *Mädchengymnasium und höhere Mädchenschule*, in which he said that, in his opinion, while the Higher Girls' School remained at its present pitch of excellence there was no real need for the 'Mädchengymnasium,' and that the cry for it, so loudly raised nowadays, was not justifiable. It is true that for women who desire to enter the medical profession a classical and scientific education is necessary. Some means must be devised to provide these ladies with such a training as would enable them to pass the 'Reifeprüfung,' in order that they may enter a university. Perhaps the best solution of the difficulty is the institution of 'Gymnasialkurse,' such as those held in Berlin and Leipzig, which are attended by girl students who already have completed their full school course. But it would be a great pity if the rise of the 'Mädchengymnasium' should injure the Higher Girls' Schools—either by taking away the best pupils, so that the standard of the schools would decline, or by causing the schools to be split into departments, or by exposing the pupils to the risk of overstrain and injury to health from preparation for examinations. That women can reach the same intellectual goal as men admits of no doubt, but whether this is for their real happiness and welfare is another question. It is by no means proved that the ideal education for a boy is also the ideal education for a girl. Even if a woman is endowed with mental powers equal to those of a man, it does not follow that

her powers are exactly similar in kind, or that the same training is desirable for them.

From the reception of Dr. Wespy's paper, it would appear that he represents the opinions of the great majority of men engaged in the education of girls in Germany. Resolutions were passed that the establishment of a limited number of 'Gymnasialkurse,' if necessary, was desirable; but that the work should be kept separate from that of the schools.

Here is another expression of Dr. Wespy's opinions, published in the *Jahresbericht* of his School: "In the interests of the pupils attending the Higher Schools for Girls, a distinct protest must be raised against those people who contend that the education provided in these schools does not correspond to the rapidly growing demands of the present day, and that it is necessary that 'Mädchengymnasien' should be founded. It is true that these afford the easiest means for women who wish to became doctors to gain the necessary preparation. But these are the only exceptions. They are quite undesirable for those girls who intend to present themselves for the *Oberlehrerin* examination: for them the path lies through the Higher School and the *Seminar*. Therefore, it is of extreme importance that all girls who do not intend to enter the medical profession—that is, the vast majority—should remain at the Higher Girls' School until they have completed the full course of nine, or, better still, ten years, the last being in the *Selekta*. Girls who leave school while they are still in Class II. have only received an incomplete and fragmentary education, as a glance at the programme for Class I. will show. But if girls leave school young, and then enter a 'Mädchengymnasium,' they have only this superficial training to serve as a basis on which to found an education of quite a different kind, in subjects such as Classics and Mathematics, with which their previous work has had little or no connection. It is possible that those girls who can take the full course at the Gymnasium, and pass their final examination, may have received a good education. Whether it is really equivalent in value to that given to boys only time will show. But for girls who are obliged to leave the 'Gymnasium' midway—that is after *Untersekunda*—the position is serious. They have undergone two quite different kinds of mental training, and have not finished either. It is no answer to say that many youths leave the 'Gymnasium' at this stage. The young man who has got his 'certificate' will find many careers open to him. But the girl is at a serious disadvantage; she is helpless; she has been obliged to neglect many useful parts of her education, and, in her present position, she is in many respects much worse off than her companion of the same age, who has finished her course, whose education is complete and thorough, and firmly grounded in her by a ten years' course of study under the teachers of the Higher Girls' School—an education, moreover, which is essentially the same all over Germany."*

* Herr Direktor Dr. Wespy has kindly given me permission to quote his opinion on this subject.

I have quoted these expressions of opinion as they seem to show, more clearly than any words of mine could, how any deviation from the path laid down is regarded, or how experiments in education for girls are received in Germany by the majority. Still, there are very many men who think differently, and in order to represent another phase of opinion upon this subject, I quote a paragraph from a remarkable speech of Herr Schulrath Dr. Lüngen, of Frankfurt-am-Main, which has been widely circulated in Germany among those interested in the movement. After contrasting the care and thought bestowed upon the education of boys with that of girls, Dr. Lüngen concludes by saying:—"I now come to my final argument: all that I have hitherto said of the necessity of a liberal education for women, important and obvious as it is, is beside the mark, and does not touch upon the real question at issue. This is: it is our duty to regard a woman, not merely as a woman—the helpmeet of man, the mother of children, the worker, perhaps driven by hard necessity to self-support—but as a *human being*, with the same rights as other human beings. We all believe that a young man, whether rich or poor, whether intended for a profession or not, has imposed upon him the noble and sacred duty of cultivating to the utmost perfection those gifts of the intellect with which Nature has endowed him, so that he may approach as nearly as may be to the ideal of humanity. Now, I ask, what right have we, men, to release a girl from this noble and sacred duty? Why, on the contrary, should we render the fulfilment of it difficult, if not impossible, for her? Is it not as if we lopped the topmost part of a beautiful tree which was striving towards the sunlight? Are we not binding down in chains of spiritual slavery a large part of the human race? Are we not cruelly withholding from women the noblest, highest good—the possession of spiritual freedom? Are the words of Schiller never to be applied to women?—

Da zerrinnt vor dem wundernden Blick der Nebel des Wahnes,
Und die Gebilde der Nacht weichen dem tagenden Licht.
Seine Fesseln zerbricht der Mensch.

No: Let us now begin to pay the debt of centuries. To the grace and personal charm of women let us add the charm of a trained intelligence, let us remove the bandage from their eyes and lead them to the fountain of knowledge, that they, too, may have their share in the gathered wisdom of ages, that they may despise empty frivolity and idle chatter, and may learn to know the highest and most inspiring of all human pleasures—the joy of mental achievement."

VII. The Training and Examination of Teachers

No woman can teach in any Public School in Germany without having passed an examination which qualifies her for the

position she desires to occupy. The system of examination in Prussia is somewhat complicated and requires explanation.

The following examination is open to candidates who have completed their nineteenth year, and who have had the necessary previous training:—

(*a*) *Lehrerinnenprüfung* (First Examination for Women Teachers), for Teachers in Elementary and Secondary Schools.

For senior candidates there are now two higher examinations.

(*a*) *Wissenschaftliche Lehrerinnenprüfung* (Higher Examination for Women Teachers) for women who having passed the *Lehrerinnenprüfung*, and have had five years' experience in teaching, and who wish to become eligible to teach in the higher classes of a Secondary school.

(*b*) *Schulvorsteherinnenprüfung* (Head Mistresses' Examination) for candidates who have passed both (*a*) examinations as above, and who wish to be eligible for appointment as Head of a school.

Formerly this was the only higher examination for women teachers, but since 1894 candidates for it have also to take the *Wissenschaftliche Lehrerinnenprüfung.*

The regulations in other States vary; they will be described later.

In addition to the ordinary *Lehrerinnenprüfung* there are certain examinations for teachers of special subjects. These are Modern Languages, Needlework, Drawing, Gymnastics. Candidates for all these examinations must have completed their nineteenth year, and must have the usual satisfactory record of work and character.

The Modern Language examination is intended for students who have not already passed the *Lehrerinnenprüfung.* Candidates can elect to be examined either in French or in English, or in both. The examination is theoretical—written and oral—and practical, and is a sufficiently severe test.

Candidates who pass it satisfactorily receive a certificate which entitles them to teach one, or both, languages in a Middle or a Higher School for Girls.

The examinations in Needlework, in Drawing, and in Gymnastics can be taken either (*a*) by candidates who have already passed the *Lehrerinnenprüfung*, and who desire to specialise in one or more of these subjects, or (*b*) by candidates who can give satisfactory proof that they have had a good general education, in addition to the requisite special preparation, and who intend to seek employment as special teachers of one or more of these subjects.

The regulations are strict in each case, and the examinations are a good test of proficiency. They are held in certain places duly specified, and are carefully conducted by highly competent authorities.

The examination for Head Mistresses already mentioned

* See Appendix V.

must be taken by ladies who wish to become eligible for appointment as Heads of schools. According to the regulations of 1894 the *Wissenschaftliche Lehrerinnenprüfung* must be passed by the candidate either before or after the examination for *Schulvorsteherinnen*. A very close and extensive knowledge of teaching and the history of Pedagogy is required for the examination. It consists of a treatise written upon a given theme, in addition to the usual exhaustive oral examination.

In order that the student may be prepared for her examination, three years' training are given in the *Seminar*.*

Once more we find, in the case of the *Seminar*, as with the Girls' Schools, that the State is not very keenly alive to its responsibility in providing for women, but bestows the lion's share of its attention on the training of men teachers. The contrast is, as before, most strongly marked in Prussia. For example, there are about seventy-five *Lehrerinnenseminare* in Prussia, of which about ten are founded by the State. On the other hand, there are for men 114 in Prussia alone.

It is somewhat better in other parts of Germany, where out of a total of forty *Lehrerinnenseminare* thirteen owe their origin to the State; that is, in Prussia the proportion of men's State colleges to women's is in the proportion of eleven to one, and in the rest of Germany of five to one.

The *Lehrerinnenseminare* in Germany may be classified as follows:—State, 24; municipal, 42; private, 49; total, 115. It will be noticed that the training of teachers is, like the rest of girls' education, left chiefly to the cities and to private individuals to provide.

Nearly all the important *Seminare* are attached to Higher Girls' Schools, forming quite a separate department however, and under the immediate control of the Director. The students have practice in teaching in the school, under the guidance of the Professors. A few of the *Seminare* are separate institutions, and practice in teaching for the students is provided otherwise. These colleges are, as a rule, intended for day pupils only. There are exceptions, however, as, for instance, the Prinzessin Wilhelmstift at Karlsruhe, which has a boarding-house for students attached to it. The larger proportion of these colleges are undenominational. Religious Instruction is given according to the Church to which the students belong—Lutheran, Roman Catholic, or Jewish, in, of course, separate classes.

The qualifications for entrance to the *Seminar* are, with slight variations, practically the same everywhere. A candidate must have completed her sixteenth year; she must have taken the full course of study at a Higher School, and, as a rule, must pass an entrance examination.

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* See Dr. Müller-Frauenstein's article on *Das Lehrerinnenbildungs-und-Prüfungswesen* in the *Handbuch des höheren Mädchenschulwesens*.—Dr. Wychgram.

Even if a girl possesses the necessary ability, it by no means follows that she remains at the *Seminar*, and becomes a teacher. The Director of a well-known *Seminar* said to me, "All the girls who come to us are not fit to teach, though they apparently possess the qualifications which our rules require. They enter our junior *Seminar* class. We study them carefully, their characters, their knowledge, their ability, above all their personality. The members of our staff have had long experience, and are good judges and critics. We talk over the girls at our *Conferenzen*. We do not hastily decide. We give them an opportunity to show what is in them. But before the end of the first year we are in a position to form a definite opinion. Then I send for the parents and say, 'Your daughter is not suited to be a teacher. There are many other things she could do better. Do not waste her time and your money by allowing her to try to enter a profession in which she will not succeed.'" So the unsuitable students are withdrawn, and the "fittest" who have "survived" go on for a second and a third years' study. I asked if the girls often failed to pass their final examination. The Director answered, "Never; I do not allow them to enter unless they are perfectly ready for it. Moreover, I know what they have studied, and they are asked questions within the scope of their knowledge; the object of the examination is to find out what they know, not what they do not know."

As in many parts of Germany, the *Seminar* represents the highest standard of education for women attainable in that district, it frequently happens that the classes are attended by students other than those who mean to become teachers. This is, for example, the case at the *Seminar* attached to the Viktoria Schule, Darmstadt, at Coblenz, and at Stuttgart. The arrangements for receiving such pupils vary—sometimes they attend the whole course, sometimes they prefer to take lessons in a few subjects only, sometimes they are admitted to the final examination, and sometimes not. Opinions differ as to the desirability of receiving these students into the *Seminar* classes. Some Directors are inclined to encourage their attendance, but others regard it as a distinct disadvantage. The question is more serious than appears at first sight. Many English teachers know how difficult it is to do justice to a senior class of girls, some of whom are preparing for a University examination, while the others have no definite object in view. The same methods of teaching are impossible to adapt to all; some pupils are sure to suffer. But the range of study in a German *Seminar* is narrower than that in an English College, more strictly 'professional' in its aim. As far as an outsider can judge, the attendance of voluntary students at the *Seminar* is an advantage to the 'professional' student, in that it provides her with the pleasant companionship of girls who, of their own free will, have sought the best means of higher study within reach, though not compelled by circumstance to enter upon a course of training as a teacher.

Time Table of a Seminar in Baden.*

(Not attached to a Higher School.)

Classes.	III.	II.	I. Compulsory.	I. Optional.
1. Religious Instruction	2	2	2	
2. German	4	4	5	
3. French	4	4	8	
4. English	4	4	7	—
5. Arithmetic	3	3	—	
6. History	3	3	3	—
7. Geography	2	2	—	
8. Physical Geography	2	2	—	
9. Natural Science	1	1	—	—
10. Pedagogy	2	3	1	—
11. Practice in Teaching	1	1	1	—
12. Singing	2	2	—	1
13. Drawing	1	1	—	2
14. Needlework	1	1	—	1
15. Drill	1	1	1	—
Total	33	34	28	4

Time Table of a Seminar in Prussia.

Classes.	I.	II.	III.
1. Religious Instruction	2	2	2
2. German	4	4	4
3. French	4	4	4
4. English	4	4	4
5. Arithmetic	2	2	2
6. History	2	2	2
7. Geography	1	1	1
8. Natural Sciences	2	2	2
9. Drawing	1	2	2
10. Writing	1		—
11. Needlework	2	2	2
12. Singing	1	2	2
13. Drill	1	2	2
14. Pedagogy	2	1	1
15. Practice in Teaching	6	—	—
Total	34	30	30

* Cp. Prussian time-tables above.

While most of the German States conform to the Prussian Regulations for the First Examination for Women Teachers, others, having already made their own Regulations, adhere to them, and as these regulations differ from the Prussian in some important respects a short reference to them is necessary. The great drawback of the Prussian Regulations is that they require only *one* examination at the end of, and as the result of three years' work; and that the candidates are obliged to keep up all the Elementary subjects until the end of their course, to the partial neglect of their Secondary subjects. A glance at the list of subjects will show how burdensome this must be.

In the *Seminare* in Baden there are two examinations; one at the end of the first two years includes all the Elementary subjects. The candidates who pass this examination are qualified to teach in the Elementary Schools, and in the Elementary classes in the Higher Schools. The examination for the Secondary Schools is held at the end of the third year, and candidates for it have time to specialise in their most important subjects. The advantages of this arrangement are obvious.

This preliminary examination formed one of the most important topics of discussion at Hildesheim this autumn at the Conference of the Verein für das höhere Mädchenschulwesen, which has been already mentioned. A resolution was passed to this effect—that at the end of the first two years' training an examination should be held in "the technical subjects, as well as in those which impose most strain on the memory."

In the discussion upon this resolution, very interesting light was thrown upon the disfavour with which examinations for girls are viewed in Germany. Many of the Directors present feared that the advantages of this preliminary examination would be counterbalanced by the additional fatigue, and the nervousness of the candidates at having an extra examination imposed upon them. Great solicitude for the true happiness and well-being of the girls entrusted to their care was shown, and sincere anxiety as to whether they might not be exposed to the risk of serious injury to health by having to pass an examination at the age of eighteen. Had the meeting consisted entirely of men the resolution might possibly have been rejected. Some ladies, however, declared that the dread of examinations was exaggerated, if not groundless, and that it would be far better for the girls to take their work in two divisions than to let it all accumulate till the end of the course, when there might be real cause to fear over-pressure.

The results of the Regulations in Baden appear most satisfactory. It sometimes happens that candidates having passed their first examination can remain no longer in the *Seminar*, but must seek a post at once. But, if circumstances permit, they are allowed to return, later on, to the *Seminar* to finish their more advanced course and to qualify for a post in the Secondary schools. This is the case at the Prinzessin Wilhelm Stift in Karlsruhe, at least, as Herr Direktor Dr. Oeser informed me.

There is no *Wissenschaftliche Lehrerininnenprüfung* in

Baden, as it has not been found necessary, and yet the position of women teachers in the schools there is said to be most satisfactory. Candidates who have passed their higher *Seminar* examination are, later on, when they have gained experience, eligible for posts as *Hauptlehrerin* (Senior Mistress). For example, in the Higher School for Girls at Heidelberg no less than eight ladies have this title, some of them giving lessons not only in the senior classes of the school, but in the *Seminar*. Again, at the Higher School, Freiburg, there are nine *Hauptlehrerinnen*, some of whom teach in the senior classes.

There is also no separate examination in Modern Languages in Baden. The comparative leisure of the last year at the *Seminar* allows time for all the candidates to specialise in this subject.*

In contrast to the regulations for the *Seminare* in Baden we may notice those in Württemberg, as exemplified in the State *Seminar* at Stuttgart. Here the course of instruction lasts only two years, and at the end of this period there is a 'Repetition Course" of six to eight weeks, after which the examination takes place. An entrance examination is compulsory at Stuttgart, by the result of which twelve girls who wish to become teachers, and belong to the Kingdom of Württemberg, are awarded free education, and, if necessary for their support, a certain sum of money annually. The remaining candidates for the entrance examination, if they satisfy all requirements, are admitted, up to the number of twenty to twenty-five annually. These pay ordinary Seminar fees. The entrance examination and subjects necessary are distinctly specified, and a high standard seems expected. The subjects taught in the *Seminar* are the usual ones, with the addition of History of Art, and Physiology. Under Natural History is included Geology, Mineralogy, Botany, and Zoology. The "Repetition Course" seems a special feature of this *Seminar*. In it, all the work in the multifarious subjects studied for two years is revised, and this accomplished, the students are ready for the Württemberg State Examination for Teachers in Secondary Schools. Every candidate must have entered upon her nineteenth year.

According to present Regulations in most of the German States, students are not admitted to the First Examination for Teachers until they have attained the age of nineteen. It must not be supposed that there is one general annual public examination at which all candidates are tested. On the contrary, there are three ways in which the examination may be conducted:—

(*a*) It may take the form of the leaving examination at those State *Seminare* which are specially entitled to hold it.

(*b*) It may be conducted by a specially appointed Commission.

(*c*) It may be held (again under the form of a leaving examination) at those other public *Seminare* which, having successfully prepared students for at least five years, have received the same privilege as the State *Seminare*.

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* See time-tables above.

As a rule, private *Seminare* are not entitled to hold Leaving Examinations, or, if they have been granted the privilege, it is temporary, and may be withdrawn if a change in the ownership of the school takes place. Special arrangements are made for the candidates who have been trained in a *Seminar* which is not empowered to hold a leaving examination.

The Board of Examiners consists of a member of the Provincial School Commission as President, and of three to five other members specially appointed, consisting generally of one of the Government School Inspectors, the Director, and representatives of the staff of the School or College where the examination is held.

The training and examination of mistresses for Elementary schools are identical, in most respects, with those for Higher Schools, and take place under the same conditions. As defined in the Government regulations, the 'basis' for both is the same, only that a higher standard of work in German and in History is expected from candidates for the Secondary Schools, and they must qualify in two modern languages. There are very few training colleges specially for mistresses in Elementary schools, and under present conditions most of the Secondary training colleges have no alternative but to prepare candidates also for the Elementary examination. It is true that some of the larger *Seminare*, at Hannover, for example, will only accept candidates who intend to present themselves for the higher examination, but the vast majority are attended by students who, perhaps, may hope, or desire, to pass the higher examination, and only take the lower when they find the former beyond their reach. From this it must not be quite taken for granted that the 'refuse' students of the *Seminar* are assigned to the Elementary schools. Much depends on the wisdom and insight of the Director, who guides the choice of the candidate to the career for which she is best suited. Many practical, and in every way admirable, students make excellent Elementary School teachers, who would not have been a success in a Secondary School. There is nothing derogatory in being a teacher in an Elementary School in Germany. In that country there is universal respect for teaching as a noble and lofty profession, whether practised in an Elementary School or in the University. And I have heard authorities, well qualified to express an opinion, lay great stress on the desirability of encouraging girls who have received a higher education to take up work as teachers in Elementary Schools.

To return to our subject. A short time before the final examination, under whatever conditions it is held, candidates are expected to inform the authorities whether they wish to be examined for the Elementary or for the Secondary Schools. The examination itself consists of two parts—theoretical and practical. The former is again subdivided into written and oral. The written examination consists chiefly of essays; for elementary teachers, German, with French (optional); for secondary, German, French, and English.

The oral examination is held by the Commission, and extends over the whole course studied in the *Seminar*.

The practical part of the examination consists of a lesson, previously prepared, which the candidate gives to a class, in the presence of the Board of Examiners. A careful record is kept of the performance of each candidate in each subject, the scale of "marks" being: (i.) Very good; (ii.) good; (iii.) satisfactory; (iv.) unsatisfactory.

Special importance is attached to German, Religious Instruction, and Arithmetic, and no candidate who fails to satisfy her examiners in these subjects can receive her diploma. Nor will she be allowed to teach in Secondary Schools unless her work in French and German comes up to the required standard. No detailed information is ever given to candidates as to the way in which they have acquitted themselves; their diploma simply states the class of school in which they are entitled to teach, whether Elementary or Secondary.

To return to the work done in the *Seminare*.

We notice once more remarkable uniformity in their curricula and organisation. It is the same as with the schools, though perhaps not so strongly marked. The usual subjects for examination are: Religious Instruction, Pedagogy, German, French, English, History, Geography, Arithmetic, Natural Science, Drawing, Writing, Needlework, Singing, Gymnastics, all of which are compulsory.

A comparison of the time tables of representative *Seminare* (printed above) will show the amount of time given to each subject, and slight variations in the curricula in different places. It will be perceived that in Baden the candidates are able to specialise in the most important subjects during their last year, as has already been remarked.

The work is almost exactly the same, with the addition of Pedagogy, as in the Higher Schools, only a more advanced stage is reached. The multiplicity of subjects prevents real specialisation in any branch, and this indeed is not intended.* Everything which has been done in the school course is repeated, as being what the candidate may herself be expected one day to teach. For example, I have heard several lessons in French grammar in which all the important rules from the very beginning were in process of revision by the students. The answering was exceedingly good, showing very exact knowledge.

As one would expect, the work in French and English in the *Seminar* is excellent. The foreign language is used for lessons in literature almost without exception. A wider knowledge is required than is usually expected in such young girls. A great deal of time is spent in essay writing, and on the whole the work must imply a somewhat severe strain. A long course is usually appointed for study, and in some *Seminare* there are

* These remarks apply to the general average of work done in the ordinary *Seminar*. We sometimes meet with notable exceptions. Among many others, admirable lectures on History and Literature, at Heidelberg, stand out clearly in my memory.

special books assigned for private reading, with which the students are expected to make themselves familiar. The same is true of German even to a greater extent. It must be acknowledged that the effect of the impending examination is sometimes noticeable in the work; it has not always the same spontaneity and freshness which is seen in the school classes. The great accumulation of subjects (although none except the German and foreign languages can be described as 'advanced' study) must cause anxiety to the candidates, lest it should not be possible for them to succeed in all. These students who are seriously engaged in preparing for their profession are about the same age as English sixth form girls. They look much older, however, and take life more seriously.

An important part of the work done in the *Seminar* is the practical training given to the students. This is done in two ways: either by "hospitieren" in the ordinary classes of the school, or by giving "practice" lessons themselves. To "hospitieren" is to attend lessons given by the teachers and professors, to listen and take notes of the methods used. Afterwards the subject is discussed with the teacher, who invites the criticism of the students, or explains his reasons for such and such a manner of procedure. The lessons given by the students themselves are carefully prepared, and a plan is drawn up, to which they are expected to adhere. These lessons are afterwards criticised by the professor (in whose presence they have been given) in the *Seminar* classes. I have heard very good lessons given by promising young teachers in the classes of the Higher Schools to which the *Seminar* was attached.

Once the years of preparation are over, and the examination is successfully passed, there comes a time of waiting for the young teachers. Experience must be gained before they can hope for a permanent appointment in a Higher School. Some of the students may be fortunate enough to be appointed at once to a post in an Elementary school, and others seek work in private schools or families. A fortunate few, if they have shown special aptitude, and can afford to wait before taking remunerative work, are sometimes taken on as junior assistants, or substitutes for absent teachers, in the Higher School to which the *Seminar* through which they have just passed is attached. By this means they have a chance of gaining useful experience under most favourable circumstances, which may perhaps hasten their promotion later on. But no matter what the training, there is no royal road to immediate success in the teaching profession in Germany. Promotion comes slowly but surely where there is real merit. It is uphill work, but the prospect of future reward and to be hereafter *angestellt* at some of the well-known Public Schools offers an incentive for work which is hardly to be found in any other country.

VIII. The 'Wissenschaftliche Lehrerinnenprüfung.'

The establishment by the Government in 1894 of a Higher examination for teachers marks an important era in the history

of women's education in Prussia. It was the result of a long uphill struggle to obtain due recognition, of combination under enlightened leaders, of resolute, patient endeavour not only to improve the position of women in Higher Schools for Girls, but to ensure their fitness for a higher position by wider and deeper culture. No rash innovations were sought, but year after year steady progress was made, each step in the upward direction being assured and justified by the one preceding it.

The first visible success was gained in 1888. In the year 1887 a petition was presented to the Prussian Minister of Education by the 'Allgemeinen Deutschen Frauenverein' praying that a larger share in the teaching in the *Oberstufe* of Higher Schools for Girls should be assigned to women, and that the State should found colleges for the higher education of women teachers, which should fit them to occupy the positions they desired. Although this petition was not granted by the Government, it may have had something to do with the establishment in the October of the following year of a course of special lectures for women teachers at the Viktoria Lyceum, in Berlin, of which Frl. von Cotta is principal.

At first only two subjects—History and German—were undertaken, but later on English and French were added. The course covered three years, and at the end an examination was held, on the result of which diplomas were granted to the students. The work was on the same level as that done in the University, and only needed official recognition by the State, with the title of *Oberlehrerin*, or something equivalent, to place it in exactly the same category as that done by men.

A few years later, in 1893, a similar course of lectures was initiated at Göttingen, under the leadership of Frl. Vorwerk. A very modest beginning was made. The course at first was to extend over only one year, and the lectures were given in a private house by University professors.* The final examination at Göttingen was to be equivalent to that of the Viktoria Lyceum.

But with 1894 came a new order of things, and for the first time a clearly defined goal was placed within the reach of women teachers. The long desired higher examination was instituted by the Government, the passing of which would grant them the privileges which had been sought so many years.

The Regulations for the examination are somewhat severe, and place it out of the reach of women of only moderate ability. The candidates must have passed their *Lehrerinnenprüfung*, and must have had five years' experience of teaching, under specified conditions. The course of study for the examination extends over two years. There are two groups of subjects†:—

A Religion, German, French, English.

B History, Geography, Mathematics, Science.

Two subjects are compulsory: One *must* belong to Group *A*; the other may be chosen from either group.

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* I am indebted to Frl. Stegeman, *Oberlehrerin*, Sophienstift, Weimar, for an interesting account of the origin and progress of the lectures at Göttingen.

† Since this was written, a new series of Regulations has been issued, for an account of which see Appendix V.

At the end of the course a State examination is held, and successful candidates are qualified for appointment as *Oberlehrerinnen* in public Secondary Schools for Girls in Prussia.

The arrangements already made for lectures at the Viktoria Lyceum and at Göttingen were altered to suit the new Regulations. The promoters of these lectures gladly welcomed the reforms; much of what they had desired for years was in a fair way of being realised.

As a result of the change in the position of women teachers, University lectures for them were soon instituted at Königsberg, Marburg, Münster, and, in this year, at Bonn. At first the final State Examination was held at Berlin only, but this privilege has now been extended to the other Universities. A ge number of students have already presented themselves for the final examinations, with remarkably satisfactory results.

Great difficulties stand in the way of teachers who desire to study for this examination. As already mentioned, candidates must have had five years' experience in teaching. This work has then to be given up, and their whole time has to be devoted to study. Moreover, the work is University work, for which the *Seminar* and years of teaching are not the best preparation. The students are, at least, twenty-five years of age, most of them older. Again, few of them have much money to spare; it is perhaps difficult for them to sacrifice two or more years' income. Several of the public schools have shown themselves extremely generous, for they not only provide a substitute for a valued teacher during her absence, but they pay her a portion of her salary to help to meet her expenses. Further, some help is given by Government grants, or by private people, or by such Associations as the "Allgemeine Deutsche Frauenverein," which pays several thousand marks a year to help women students.* Still it will be clearly seen that no small amount of energy and determination must be needed to give up a post, and to enter upon a course of severe and unaccustomed study when the first freshness of youth is past.

Under the most favourable conditions imaginable a candidate is at least twenty-seven years old before she can enter for her examination. Very few are so young. The goal, once achieved, is, however, well worth the trouble, and means an honourable position assured for life. In theory the highest prizes in the teaching profession are open to women who have passed this examination. In many schools the successful candidates are eagerly sought for, and desirable posts in the Higher Schools are placed within their reach. They teach in the senior classes in the school the subjects in which they have specialised. Some of the best lessons I heard in History and German (long considered the special province of the *Lehrer*) were those given by *Oberlehrerinnen*. When they have passed the *Schulvorsteherinnen* examination, these teachers become eligible for appointment as heads of schools, and it is probable that the

* See Appendix II. for the latest *Ministerial Rescript* upon this subject, and also Appendix V.

near future may see widely realised in practice what is now possible in theory.*

The Viktoria Lyceum in Berlin, as the first, is still the most important institution for preparing candidates for the *Wissenschaftliche Prüfung* for teachers. There are six courses of study, each under the charge of a specialist:—Religion, six hours; History six hours; German, six hours; French, six hours; English, six hours; Mathematics, six hours a week.

So far as I have had opportunity of judging, the work done at the Viktoria Lyceum is more in accordance with that of a University *Seminar* for men than it is in other places. Regular *Uebungen* of the class and professor, so far as is possible, and lectures alternately by professor and students (the latter based on home study and written work) are distinguishing features. Some of the students supplement their work at the Lyceum by attendance at lectures at the University, if necessary or desirable. The Modern Language lectures are given in the foreign language, as a matter of course. I had the pleasure of hearing extremely good work in French Metres and Phonetics, as well as a German literature lecture of the usual excellence which one always expects in work of this kind in Germany. The classes are held in the afternoon, and are attended by some very able students.

The lectures at Bonn University commenced only last spring. Many of them are given for women alone (especially in those subjects which are new to women students), but several of the ordinary University lectures are (by permission of the Professors) open to women also.

The subjects undertaken at Bonn are as follows:—

	Hours weekly.
Religion (Evangelical)	6
" (Roman Catholic	4 to 8
German	6
English	7 to 10
History	7 to 10
French	9 to 11
Philosophy	2
Psychology	2

Students who attend these lectures, especially those who take Religion, History, and French, are expected to possess some knowledge of Latin. Some acquaintance with Greek grammar is desirable for those who attend lectures in Religion. The students of German Literature are expected to possess a good 'first hand' acquaintance with modern German Literature, to have read Homer and the Greek tragedians in translations, to be familiar with Shakespeare's works, and to have as much acquaintance as possible with the principal works of Corneille, Racine, Molière, Voltaire, Rousseau, Richardson, Fielding, and Sterne.

The course of study extends over at least two years, and an additional *Semester* may be added hereafter.

* There are at least two of the smaller Public Higher Schools the Heads of which are women.

By the courtesy of Prof. Litzmann, Prof. Franck, Prof. Gotheim, Prof. von Bezold, and Prof. Trautmann, I was permitted to attend some of their lectures, both University and those for women students only, and was thus able to form an estimate of the work which is being done by the candidates for the Higher Examinations for Teachers at Bonn University. I was much struck by its thoroughness and excellence.*

Another opportunity for gaining wider culture is afforded to women teachers by the *Ferienkurse* (extension lectures) which are held every summer in connection with several German Universities; but as these are well known and have frequently been described, I omit further mention of them.

For the same reason, I have avoided giving any account of the special qualifications of the men teachers in Higher Schools for Girls Full details upon this subject are within easy reach of every English reader who is interested in it, and the expressions "akademisch gebildet," "Oberlehrer," "Professor," "Reallehrer," and the like, now convey a distinct signification to educated English ears.

IX.—Summary and Conclusion

The preceding sketch is an attempt, unavoidably incomplete and brief, to point out some of the most noteworthy characteristics of the system of State-regulated secondary education for girls in Germany. Prussia, as the leading State, has, as a rule, been taken as representative, and only the more remarkable deviations from the system prevailing there have been touched upon.

The regular and continuous development of the well-ordered 'Higher School' of the present day out of what was merely an elementary school forty years ago has been indicated. With the improvement of the schools, it has been seen that the position of the women teaching in them has also improved. The time is not yet ripe for detailed criticism, least of all from a foreigner, of a great scheme for public secondary education which is still, so to speak, on trial, and has not yet attained its full development. For this very reason it is a subject of special interest to students of education, in that it affords them an opportunity for observing the working of a system of comparatively recent origin before it has had time to assume its final shape, while it is still "im Werden"—a difficult problem in process of solution.

The mass of varied and conflicting opinion upon the subject of secondary and higher education for girls in Germany falls, on the whole, into two main divisions—*a*, of those who believe that in the Higher School and *Seminar* the best and safest solution of the problem is to be found; and, *b*, of those who, while they recognise the merits of these institutions, yet desire that women

* I take this opportunity of thanking Frl. J. Gottschalk, Honorary Secretary to the Local Examination Committee, for kind help and information given.

may have the opportunity of the more liberal education afforded by the 'Gymnasium' and the University. In other words, one side believes that a girl's education should differ essentially from a boy's, the other that it might possibly be the same. Between these two extremes there are many varying shades of opinion, but the general consensus of opinion seems to be that the 'Gymnasium' and the University are only for the select few, for those exceptionally gifted and ambitious girls who have a definite object in view, such as entering one of the learned professions. Only those whose vocation for higher studies is unmistakable should be permitted to enter upon them. It is instructive to contrast these conscientious convictions about higher education for girls with the tolerant (or, shall we say, indifferent ?) attitude of opinion in England, where it is not a matter of much general interest or importance if a certain public school chooses to prepare its pupils for the University or not.

Where the fundamental ideas upon which the two systems of secondary education for girls are based differ so widely as do the German and the English* it is no easy task to institute a comparison between them. The German dream is of the attainment of uniformity throughout the whole country; in England, as we know, it is otherwise. German students of education who have visited boys' schools in England are always much impressed by their variety of type, of organisation, of aim, and methods—in a word, by their extreme dissimilarity. Each school has its own traditions, its distinguishing characteristics, each stands alone. But to describe the 'infinite variety' of secondary schools for girls in England, and their relative degrees of merit, ranging from the top to the bottom of the educational ladder, a German could find no words in his copious vocabulary.

That the German school cannot fall *below* a certain standard of efficiency is guaranteed by its State-regulated curriculum and organisation, as well as by the system of official inspection. Each parent knows exactly what education his child will receive in the school of his choice. In England, where there is no such recognised public guarantee of merit, the success and reputation of the school depend to a much greater extent upon the Principal, on whose shoulders a vast burden of responsibility rests. Again, in England, education for girls affords a wide field for experiment and individual enterprise, the results of which may be wholly excellent or extremely mischievous. This could not happen under the more closely-organised German rule, where (except within a comparatively narrow range, or at great pecuniary risk) experiments in education are not readily tolerated. This has its disadvantages as well as its advantages. As we shall notice later on, the State control which sees that each school maintains a certain standard of efficiency exercises limitations in other directions, and the English school, with its more elastic organisation and more varied aims, may, *if under the guidance of a wise and enlightened Head,* achieve greater things, and realise a more lofty ideal than is possible under present conditions in Germany.

* In so far as England can be said to have a 'system' at all.

As is generally known, the boarding-school plays a much more important part in secondary education in England than in Germany. This is especially true of girls' schools. The vast majority of German girls attend the local day-school; very few, unless the circumstances are exceptional, are sent away from home to a boarding-school—certainly not until after they have passed through the Higher School.* There is nothing whatever to correspond to the best type of English boarding-school, which aims at doing for girls what for generations has been done for boys. There is no demand for such institutions in Germany; their value would neither be understood nor appreciated. At best they would be regarded as an example of the expensive luxuries in which, it is supposed, English people delight to indulge. Further, there are no Resident Colleges for Women attached to a University, and nothing which takes their place.

The only type of school, common to both countries, which will admit of fair comparison is the day-school. The nearest parallel to the German Higher School will be found among the *best* English public High Schools for Girls. I say "the best" advisedly, for though the German school may lack much that is deemed essential in England, it has, nevertheless, in its own class, within its own limitations, reached a degree of excellence which would be hard to find elsewhere.

State-regulated education does not necessarily ensure the best and highest culture for the individual, but it does certainly ensure a higher average of intellectual attainment for the majority than where no such compulsion is exercised. For instance, there were in 1897 about 58,000 girls who were in attendance at 196 fully-equipped public Higher Schools in Germany.† Now, if we include those schools which also provide secondary education, and also come under the designation "Higher," as they have practically the same curriculum as the "fully equipped," but have hitherto not been mentioned as they have fewer classes, this brings the number up to 363 schools, with a total of over 81,000 pupils.‡ No accurate return of private day-schools can be given, but it is estimated that they are attended by a still larger number of girls. It will be recollected, further, that a private school cannot call itself "Higher" unless it conforms to the standard required. It is almost certain, therefore, that a larger proportion of girls are receiving secondary education of a *certain clearly-defined character* in Germany than in England. Accurate statistics on the subject of girls' education in every country are elusive and difficult to obtain, but by including all the groups

* As already mentioned, the small private boarding school, or "Pensionnat," abounds in certain parts of Germany. But a large proportion of the pupils attending these are foreigners, who have come in order to learn the language. As a matter of fact, these schools cannot seriously be included in the *system* of secondary education in Germany at all.

† See § IV. above.

‡ *Kalender für die Mitglieder des Deutschen Vereins für das höhere Mädchenschulwesen.* Ed. Direktor Dr. Schröter. 1899.

of schools in the published Return, which could possibly be called public and secondary, it would appear that in 1897 there were about 33,953 girls under instruction in 287 English schools. That *all* these schools provide really *secondary* education is extremely doubtful; certainly only a small number of them would come under the same category as the German Public Higher School.*

One of the evils from which the German school is entirely free is that of preparing for examinations, either public or private; inspection takes their place with infinitely more satisfactory results. Again, as we have seen, it is not in any sense a business enterprise, expected to pay interest on the capital expended. The fees are low, and within the reach of all who desire secondary education for their children. Not that the school is in any sense a charitable foundation. The Germans are willing to pay higher taxes in order that their whole system of education may be regulated and controlled for the common good by highly-skilled experts, in whose powers they have perfect confidence. Granted a more liberal conception of the best education and training for girls, there seems no reason why the system of Higher Schools should not confer a very great benefit upon the country at large by raising the average level of culture for women throughout all Germany.

It is fully recognised that the absence of external stimulus of any kind renders the task of the teacher in girls' schools doubly difficult. It rests with him to furnish an incentive to study, and to encourage intellectual efforts. The question of his personality becomes more than ever one of grave importance, upon which the welfare of the whole school depends. The personal relations with the pupils in the school are on a different footing from those in the English schools, as we shall see further on.

The duties of the *Direktor* of a girls' school in Germany are in some respects less complex and more clearly defined than those of a Head Mistress in England. If he has less freedom of action, he has less responsibility, and less depends upon his own initiative. New pupils enter the school once, or, at most, twice a year, and, thanks to the system of compulsory education, he will not have much trouble in assigning her place to each. It is well known to every English Head Mistress that girls enter schools in England at any time of the year, at any age, and in

* See the *Return of the Pupils in Public and Private Secondary and other Schools in England, on 1st June, 1897*, published by the Education Department. These most valuable statistics show the number of schools with no day scholars, but not the number of schools receiving day scholars only. The German schools referred to are *day schools*, the English include *both* day and boarding schools. It will be recollected that the word "public," as applied to a school, does not convey the same meaning in Germany as in England. A German would not recognise as "Public" most of the English Girls' Secondary Schools which bear that name. For instance, a Company which is well known in England for its noble provision of Secondary Education for Girls, was described to me by a German educational authority as being "eine Gesellschaft, bloss um Geld zu verdienen."

every stage of ignorance. There would be no place for such girls in the rigid organisation of the German school. But it would be hard if they had to suffer for the negligence of their parents, so the English school receives them, and in a couple of years what a magical change is effected! The more elastic organisation and liberal methods of the English school can be adapted to the needs of the individual girl without an appeal to Parliament for permission to do so. The class system of teaching, the fixed curriculum, the clearly-defined organisation, and the absence of examinations render the drawing up of a time table for a German school of 800 girls an easier task than it would be for one-fourth of that number in England. The energy of the German *Direktor* is not dissipated upon all sorts of extraneous duties; he is at liberty to devote his whole attention to the serious business of the school, to see that his staff work harmoniously, and that the teaching in every department is the best attainable. He is satisfied that the organisation of his school is as good as it can be, and in any case it is not directly in his power to alter it. He has, of course a great deal of official work in drawing up reports and sending in returns of the school to the governing authority, but the question of finance does not come within his scope, nor is he troubled by any doubts as to whether the school 'pays' or not. As the *Direktor* of the school is chosen more for his fame as a teacher than as an organiser, and as powers of a specially high order are needed for dealing with girls, it follows that some of the best authorities on pedagogy in Germany are found at the head of girls' schools.

But while everyone is ready to acknowledge the great merits of the German system, we miss in the schools much of what is so original and distinctive in the English. The varied curriculum of the English school, *when in competent hands*, possesses advantages so obvious that it is wasted time to repeat them. When we reflect upon the 'system' of education for girls in England, as a whole, we acknowledge that it is chaotic, heterogeneous, disorganised—anything you like to call it. But let us take the *best representatives* of the system, and we shall find a nobler conception of woman's place in the civilised world, more exalted ideals of the training of the mind and the development of character than are probably to be found in any other country in Europe.*

One occasionally hears a certain class of schoolmistress speak in a somewhat slighting tone of a 'private school,' almost as if it was a term of reproach. It is quite true that for want of State control there is no guarantee of a fixed standard of efficiency in any private school in England, and that for lack of this many of them do not fulfil their real functions, nor, indeed, deserve the name of a school.

But the great debt which girls' education in England owes to

* Schopenhauer's opinion that "Die abgeschmackte Weiberveneration der abendländischen Völker ist die höchste Blüte christlich-germanischer Unnahbit" is however, not shared by everyone in Germany.

the private school must not be forgotten. Practically all that we value and admire most in the modern education of girls is due to the energy and initiative of famous women, who, without aid from the State or from any public fund, themselves founded schools, planned their organisation, devised their curriculum, and by their own efforts at once placed education for women on a higher level than it had ever occupied before. Many of the girls' schools of which England is, with good reason, proud, were in the first instance private schools and the work of individual women. These women have been able to infect others with their own enthusiasm, they have to a large extent educated public opinion, and once the initial stage of the school was passed, they have received support and recognition. But all that is best and most characteristic in the school is theirs. Their own personality is reflected in it. There is hardly any limit to their sphere of influence.

Even in the public school the Head Mistress in England reigns supreme as she does in no other country in Europe. No governing body or council dreams of interfering with her authority as long as she shows herself competent to exercise it. If she has more personal responsibility, and probably more worry than would be the case under State control, she has, as a compensation, more power; is more free to act as she thinks best; can modify or alter the organisation of her school; can introduce such books or subjects as may seem advisable; can re-arrange her staff; can influence the career of every pupil under her charge; is, in fact, a free agent—not a public official.

State control would not permit this free development of a school to suit the needs of a certain section. The natural growth and variety of such schools as the English would be hampered at every step by official regulations, which, while, it is true, enforcing a "mininum" of excellence, would certainly interfere if the prescribed "maximum" were exceeded.

This seems to me the inherent weakness in a system of State control as applied to girls' education, and while we admire the many and great perfections of the German schools, we regret that their very merits are a source of weakness, and that they are not more adaptable to the special educational needs of each individual pupil, or section of the community, instead of having a common uniform and invariable standard.

Many German women who have realised what great things are being done for girls' education in England by women, have also striven to obtain what was best for their girls. Their efforts have been only partially successful, for though they have accomplished wonders, and have earned the gratitude and admiration of their fellow women, they have not enjoyed the same perfect freedom from restraint which has enabled Englishwomen, to a large extent, to work out their own ideas, and to put their own carefully thought out theories into practice. Only those who have given serious attention to the subject can realise how delicate, how complex, how difficult the question of girls education is,

and what sympathy, what tact, and what insight into human nature is required in those in whose hands it is placed.

This leads to another important consideration. In England the education of girls is regarded as a *woman's* business. Not only is by far the greater part of teaching in girls' secondary schools in the hands of women, but with women chiefly rests the control and management of public schools for girls. Women are highly esteemed members of Councils and governing bodies of schools and colleges for girls; they are upon equal terms with men; their opinion carries the same weight. It would hardly occur to any educated person in England that it could be otherwise. But it is not so in Germany. Not only do women, as a whole, occupy a much less important position than men in the schools themselves, but, so far as I am aware (and I have made inquiries upon the subject), there are no women members of any of the governing bodies (Provinzial-Schulkollegien and the rest) under whose authority the schools are placed, nor have they any voice in the public control of the schools. It is true that representative women would probably be consulted by the authorities if any vital change in the constitution of the schools were intended, but rather in the capacity of witnesses than of judges. To English ideas it would seem desirable that in a system of State regulated education for girls, a large share of the power and control should be in the hands of competent women, before a final and satisfactory solution of so complex and difficult a problem could be hoped for.

To make general statements comparing the institutions of one country with those of another is, however, an occupation very tempting, but very difficult. After this digression it will be well to return to some consideration of the schools themselves before bringing this paper to a close.

Two mighty factors in the development of character, which exist in every English school worthy of the name, are found only to a limited extent in Germany: these are the personal influence of the teacher, and the physical and moral training gained in a well-ordered games-club. The personal relations between teacher and pupil are in Germany widely different from those which are encouraged in England. As a rule, there is little or no intercourse between them out of school, there is no common ground upon which all meet, no occupation or amusement in which both take part as equals. The teacher remains the teacher always, usually very kind and considerate, especially to the members of his or her own class, but there is no true comradeship or friendly equality outside school, such as gives the English teacher so much influence over her pupils. That the same person can play two different parts—in office, the teacher, the superior, the firm disciplinarian; out of office, the friend, the equal, the good companion—seems hardly to be thought compatible in Germany. The inestimable advantage of such companionship to the young, the healthy influence that may be exercised, the opportunities afforded to the teacher for studying the character of her pupil from a new point of view, do not seem to be considered. It is true

that the boarding-school offers more opportunity for fostering such relationships, but even in the day-schools the difference between Germany and England is strongly marked. As to organised games, in the English sense of the term, they simply do not exist in Germany, and their value as an aid to training character is imperfectly recognised. Much is being done in Germany to promote physical exercise for girls, but it is solely from the point of view of health. So far as my observation goes, the German girl develops more rapidly than her English sister: at 15 she is in appearance, dress, and manner, more womanly than the ordinary English girl of the same age. She does not take that keen interest in athletic pursuits to which we are accustomed in the modern type of English schoolgirl: she is not so free and unconstrained in her movements: she is already becoming a more responsible human being. The teacher, too, gives less time to exercise; her energy is spent to a greater extent upon her teaching. Though the hours are perhaps not longer than those of the English school, her work is of a more exacting nature. The strain of giving lessons according to German ideals is very great, as has already been said, much preparation is needed, and a long time is spent in corrections. The teachers have neither time nor energy to cultivate personal relations with their pupils; in many cases, as I know from my own experience, they have no inclination either.

The above remarks apply to women teachers only, and if there is little social or personal intercourse between them and their pupils, there is still less between the masters and theirs. In the nature of things it is impossible that it should be otherwise. When speaking of men as teachers in girls' schools in Germany, it must be remembered that they are not merely 'visiting masters,' still common enough in England, but that they form the most important portion of the regular staff of the school, and that even if not numerically superior, they carry most weight, as the principal posts are occupied and the principal subjects are taught by them. They are 'form-masters' of the principal classes, and have exactly the same jurisdiction over their classes as the women have over theirs. The task of administration, organisation, and teaching in a great school is admirably fulfilled by a man, his rule is beneficent, his influence over the staff and pupils excellent, but it is impossible that his relation towards the girls under his charge should be quite the same as that of a good Head Mistress towards those under her. I have often read, and have often been told, that family life on a large scale is illustrated in the girls' school in Germany. The analogy does not seem to me to hold good, unless, indeed, the mother consents to play a somewhat subordinate part in her own house.

The high standard of teaching in many girls' schools is undoubtedly due to the ability and competence of some of the men who teach in them. There is no need to dwell upon the advantages for a young girl of coming in contact with a keen masculine intelligence, when possessed by a skilled and successful teacher. No one could desire to exclude men from teaching in girls' schools;

quite the contrary. But it is regrettable that sometimes men who are not specially adapted for teaching in girls' schools are employed to do work which would certainly be more suitable for women. Further, it is my experience that the extensive employment of men in the most important posts tends to detract from the esteem in which women teachers are held by the public, and even by the pupils themselves. Many times young girls have told me that they preferred classes taught by men—"ladies do not know so much; they cannot teach so well." This was probably true, to a certain extent, until quite recently. The number of women who have had the same advantages as men is still comparatively small, though it is steadily increasing. But now men have by no means the monopoly of good teaching in a girls' school. By sheer force of character and intellect, and by thoroughly good work, women are winning their way to a position of influence and importance, from which they have hitherto been excluded by circumstances which they were powerless to control.

Englishwomen who wish to enter the teaching profession find many ways open to them: private or public school education, or private teaching; either Training College or University, or both; foreign education; nothing forms a bar. Once appointed to a post it rests with the teacher herself to make or to mar her own reputation. But in Germany there is only one road which leads to the teacher's profession—*i.e.*, through Higher School and Seminar to the State Examination. A woman who has obtained a Doctor's degree at a University is not eligible to become a teacher in a public school unless she has also gone through the regular course of preparation, nor can she hope for any of the prizes of the profession unless she has also passed the higher examinations which lead to them. Contrast this state of affairs with England, where a distinguished University graduate is a most welcome candidate for an important post in a school or college for girls.

In comparison with England, there are but few openings for educated women in Germany. There is the teaching profession of course, but under certain limitations; a very small proportion are entering the higher professions (medicine and the law), while others (but again only a small number) are employed in literary and journalistic work. Horticulture as a profession for women is gaining in popularity; there is at least one admirably-managed Horticultural College for training women gardeners, at Friedenau, near Berlin (Principal, Frl Dr. Kastner), which I had the pleasure of visiting last June. It is doing excellent work, and has proved most successful.

But, generally speaking, the cultivated German woman views with envy and admiration the advantages possessed by educated Englishwomen, the variety of scope and aim which distinguishes their work, the liberal education open to all who desire it, the comparative freedom and independence of their lives, their importance and influence as intelligent and reasonable members of the community, their knowledge of the world and affairs, and, last but not least, the tolerant attitude of public opinion towards

their actions. Let an ambitious, dissatisfied, restless Englishwoman spend some time in Germany studying the woman's question if she would learn to be contented with her own lot. A German lady, a delegate at the Women's Congress held in London last July, told me that nothing surprised and impressed her so much as the active share taken in the business of the Congress by ladies of high social position in England. That ladies of high rank should be interested in, and sympathise with, all questions dealing with women's education and employment seemed to her amazing. The same class in Germany still stand practically aloof, and know little of what concerns the position of women beneath them in rank. When a German Archduchess was told of the part taken by English women of title in the Congress, she could hardly express her astonishment and incredulity. English people are so accustomed to it that they take it as a matter of course that Duchesses and Countesses should lend their houses for educational purposes, and should take an active share in all social and philanthropic work. What is viewed with perfect equanimity in England would arouse astonishment in Germany. This is only mentioned as an illustration of the attitude of popular opinion towards women's work in England as compared with Germany. In England it is regarded as a question of almost national importance, with which all classes of society are concerned, and is a subject of interest to all.

The German system of secondary education for girls may be said to be adapted to the less complex social conditions of the country where women are not expected to play so obvious a part in influencing the current of public life and politics, as they do to a comparatively large extent in England. In Germany a woman's place is emphatically in her own home. Her attention is concentrated upon her own family life, the duties of which she fulfils to perfection. Intelligent and well read as she often is, the range of her interests is somewhat narrower than that of the really cultivated Englishwoman. That a rich and clever woman, free from home ties, should take an active share in the public business of her country, should, for example, be member of a Board of Guardians, should canvass for votes, or should be regarded as an authority where the education of other women is concerned, causes surprise to the average German woman. Generally speaking, she takes a smaller part in, and is less interested in the politics and public affairs of her own, and of other countries, than the average Englishwoman. There are, however, many notable exceptions, many German women of distinguished ability, authorities on education, art, social questions—many who possess remarkable capacity for accurate scholarship, fully as great as that shown by any Englishwoman. But the best type of intellectual and cultivated Englishwoman is not necessarily the product of a High School and University training. She has grown up amid cultivated surroundings, in an atmosphere congenial to intellectual life; she has had the privilege of a liberal education of the truest kind: school and university

may have aided, but they alone would be powerless to achieve such a result. The German attaches such importance to mental discipline and training that it would appear as if he believed that, given certain favourable conditions, a certain result is sure to follow. Yet something more than a school and college training (excellent as far as they go) is required in order to produce the cultivated, reasonable, and wholly delightful type of woman. Higher School, 'Mädchengymnasium,' and the rest may, indeed, help towards the desired result. But a critical period comes when the schooldays are over. A great responsibility rests upon those under whose influence a girl comes at this the most impressionable period of her life. To encourage her to read independently, and to think out questions for herself, to appeal to her good sense and power of judgment, to train her in self-reliance and self-control, to give her scope for her energy, a definite object in life, will procure for her new sources of happiness, and, at the same time, help to make her a more interesting human being. The care of the State is for the great mass of the population, it cannot take the individual into account. It rests with those who carry out its regulations and whose advice is sought in reforms and changes, to put a liberal interpretation on the term 'education' for girls, to recognise what a noble work is put into their hands, and that with them it largely rests to raise the whole level of intellectual culture among women, not only in Germany, but, by their example, throughout the human race.

MARY ALICE LYSTER.

January, 1900.

(*For the New Regulations, July* 1900, *see Appendix V.*)

APPENDIX I.

"Frequent petitions have been addressed to the Government asking that all the Higher Schools for Girls which conform to the 'Maibestimmungen of 1894 should be placed under the immediate control of the 'Provinzial-Schulkollegium.' To such a wholesale disposal there are objections which could only be removed by legal enactments. Therefore further action in this direction must be postponed for the present. In future, only those public Higher Schools for Girls which have a fully equipped 'Seminar' connected with them will be placed under the authority of the 'Provinzial-Schulkollegium.' For to divide the control, by assigning the school to the 'Regierung' and the 'Seminar' to the 'Provinzial-Schulkollegium' is an unsuitable arrangement, and it must be altered where it at present exists. Where public Higher Schools which agree with the definition of the 'Maibestimmungen,' 1894, are still under the control of the 'Kreisschul inspector,' they are, if the governing body desires the change, to be put under the control of the 'Bezirksregierung' instead." (*Ministerial Rescript of August 9th, 1899, on the subject of Secondary Education for Girls*). See pages 219 and 241.

APPENDIX II.

In a *Ministerial Rescript on the subject of Secondary Education for Girls*, dated August 9th, 1899, and addressed to the 'Regierungen' and 'Provinzial-Schulkollegien,' the late Minister of Education, Dr. Bosse, calls the attention of the local authorities to certain important questions which have arisen in the carrying out of the 'Maibestimmungen' of 1894.

Dr. Bosse says he had fully recognised the justice of the claim made by women teachers to take a larger share in the instruction given in the Senior Classes of Public Secondary Schools for Girls, and he had established the 'Wissenschaftliche Lehrerinnenprüfung' in order to qualify them to do so. He then goes on to say: "In many places scruples, by no means justified by experience, still exist on the question of granting to women teachers their due share in the education of girls in public schools. It is an indisputable fact that, especially in the early years of development, the influence of the woman teacher cannot be dispensed with, and cannot be replaced. During those years, to leave the education of girls chiefly or exclusively in the hands of men would be unnatural. Instruction and moral training are inseparably united in our schools, which are to educate by means of instruction. The influence of women teachers upon growing girls cannot be exercised to the extent desired until a share of teaching in the senior classes, larger than is usual at present, is entrusted to them. The teaching of the so-called ethical branches of study can also without hesitation be given to these women who have proved that they are equal to their task from the scholastic as well as from the moral point of view. I am glad that the results of the 'Wissenschaftliche Prüfung' show that a large number of excellent teachers are fitted to instruct, not only in Foreign Languages, but in German, History, and Religious Knowledge in the senior classes.

"We may take it for granted that the 'Fortbildungskurse,' which are being actively promoted in Berlin, Göttingen, Königsberg, Münster, and Bonn, will be able to provide a increasing supply of highly competent teachers to fill every vacancy. To acquire such teachers for the senior classes ought hereafter to be an easy task for the larger towns. I have full confidence that the earnest endeavours of women teachers, combined with the excellent work which they are doing, will be able to conquer the doubts or prejudices which still exist in some places with respect to their employment in the senior classes. I therefore hope that an increasing number of governing bodies will, in the interest of their schools, always be willing to give leave of absence and pecuniary aid to able

teachers in order that they may benefit by the 'Fortbildungskurse,' and, when necessary, I shall gladly help them as far as possible." So much for the teaching by women in the upper forms.

Near the end of the same *Rescript* Dr. Bosse says, in reference to elementary teachers in a Girls' Higher School, *that those men only who have passed the examinations qualifying them to teach in a Higher, or in a Middle School, can in future be employed as teachers in a Higher School.* Men who possess only the qualification for Elementary School teachers shall not in future be appointed to teach in the junior classes of a Higher School, as has often been the case hitherto. "In a girls' school it is better to entrust the initiation of beginners into the life and work of the school, and their instruction and guidance during the earlier school years to the care of skilful women teachers, whose feminine mind and perception are naturally more in sympathy with the nature and needs of the little ones. I am glad to find among the younger women many who by their personality are especially suited for teaching children." It is needless to comment upon this recognition by the highest authority of the value and importance of women as teachers at all stages in a Higher Girls' School in Germany.

APPENDIX III.

Note on Teaching of Natural Science in Higher Schools for Girls.

The teaching of Science in girls' schools in England is attracting so much attention at present, and is deemed of such importance, that it seems desirable to give a short account of the aims and methods of teaching this subject in secondary schools for girls in Germany, together with a translation of that portion of the official Prussian Regulations for Girls' Schools which deals with it. The reader's attention is specially called to the "Remarks on Method" on page 74.

The Official Prussian Regulations.

"A. General Aim.

(1) Natural History: The close and thoughtful observation of Nature. Elementary notions of structure and the most important physiological phenomena of animals and plants, of the mutual relations of the different living creatures and their relation to man. General laws of health.

(2) Natural Science: To impart by means of experiments, an elementary knowledge of the chief laws and processes of Physics and of Chemistry, especially of those which are most important for domestic and social life, and which help to determine the progress of civilisation in these days.

B. Programme of Work.

Class VI. Two hours a week.

Description of simple flowering plants actually before the pupil. Explanation of the most important parts and forms of the roots, stems, leaves, flowers, and fruits. Fundamental conditions of the life of plants. Description of some important native mammals and birds, in relation to form, colour, and size from specimens at hand, or illustrations if sufficiently large, together with information about their mode of life their usefulness, or their harmfulness.

CLASS V. Two hours a week.

To extend and supplement the work of Class VI. with the addition of the study of reptiles, amphibious animals, and fishes. Fundamental principles of anatomy of human beings.

CLASS IV. Two hours a week.

Comparative description of the related genera and species of flowering plants from actual specimens. Biology of plants. Poisonous plants. The lower animals, particularly the useful and the harmful, as well as their enemies, with especial reference to insects and their significance in the economy of nature. The commonest minerals of every-day life according to their appearance, extraction, and value.

CLASS III. Two hours a week.

The most important cultivated plants and their uses. Fundamental principles of the anatomy and physiology of plants. The most important facts about cryptogams and the diseases of plants. The structure and physiology of the human body, with instruction in hygiene.

CLASS II. Two hours a week.

The principal chemical processes, with special reference to mineralogy and geology. Physics: Heat, magnetism, electricity.

CLASS I. Two hours a week.

Equilibrium and motion of solid, fluid, and gaseous bodies; sound; light.

C. REMARKS ON METHOD.

In view of the wide extent of ground to be covered in these subjects, and the comparatively small amount of time that can be given to them, very great care must be exercised in making a suitable selection. The aim of the teacher must be first of all to guide the pupils to observe and to think for themselves, and carefully to avoid overburdening them with mere memory work. Experiments and direct observation are in all lessons to take the foremost place. It is desirable to enable the pupils to carry out experiments themselves. No importance is to be attached to a knowledge of botanical and zoological systems and schemes of classification. The plants and animals which are of most importance for human civilised life are to be put in the most prominent place; natural objects in the vicinity and their vital connections are first of all to be made known to the pupil. Natural objects themselves, when they can be procured, are to be preferred to illustrations. The instruction in anatomy and physiology of the human body, and in hygiene, is, on the one hand, to be given without diffidence, but, on the other, with due regard to feminine sensitiveness. In Physics, a mathematical treatment of the subject is only permissible when there is a natural connection with the teaching of geometry. A special text book for teaching natural science appears unnecessary. If one is used it must be suitable for a girls' school, short and clear, and must avoid all appearance of being a scientific treatise."

It is generally recognised by German educationists that the careful study and observation of Nature, of plant and animal life, not only afford a mental discipline of the utmost value, but are also an important aid in the formation of character. Some training, therefore, in the rudiments of Natural Science forms an indispensable part of the carefully-planned curriculum of a girls' school, care being taken that the symmetry of the curriculum is not disturbed by giving undue prominence to the subject. Natural Science in secondary schools is regarded as a single subject, and must be taught as far as possible as a connected whole, and not sub-divided into separate branches. If sub-division is necessary for purposes of convenience, the close relations existing between the different branches must never be lost sight of.* These must be taught in

* "They are not taught as distinct sciences, but as a means of assisting the individual to a more complete realisation of his surroundings."—J. F. Russell Ph.D., *German Higher Schools*. Longmans.

connection with each other, so as to train in the pupils the faculty of observing, of describing accurately, and of drawing logical conclusions from observations and experiments.

It being distinctly understood that the Natural Sciences are to be regarded and treated as one subject, the order in which the different parts shall be taught is clearly indicated in the official Prussian programme. The parts, or groups of parts, which are most closely related to each other are taken together or in succession. For example, it is generally agreed that to begin with the study of Botany is most convenient. Specimens are easily accessible, and can not only be seen but handled by the pupils. The study of plant life naturally leads to that of animals, and from thence the transition to the rudiments of human anatomy and physiology is obvious. The laws of health are studied; then follows an introduction to elementary geology and mineralogy, while, incidentally, some knowledge of a few of the most important chemical processes is gained. The course in Physics is strictly 'outline,' and includes study of the more remarkable phenomena, and the laws of its different branches, so far as this can take place without application of mathematics.

In view of the enormously wide range of this subject, very great wisdom must be shown in the choice of what is to be presented to the child. No exhaustive treatment of any branch is aimed at; on the contrary, it is not deemed possible or desirable to gain a thorough knowledge of the principles of any one branch of science while at school. To quote Mr Russell again: "To understand the relations existing between sciences is worth more than the extensive knowledge of any one."

In the best schools ample provision is made for teaching Natural Science. There are rooms specially built for the purpose, furnished with supplies of expensive apparatus, there are huge cupboards stored with specimens, botanical, zoological, and geological; illustrations, diagrams, charts are found in bewildering number and variety. Rows of benches, each one raised above the other, render it possible for all pupils in the class to follow every stage of the experiments performed by the teacher.

The time at the disposal of the teacher is very short, only two hours a week. This renders his difficult task still more difficult. It is true that the instruction given in the class-room is, when possible, supplemented to some extent by open-air work. Excursions are made in company with the teacher, and the children are encouraged to form collections, and to observe and describe what they see as accurately as possible. The opportunities for such excursions vary, of course, very much in different schools. In the official programme for the Prussian boys' Higher Schools, great importance is attached to detailed drawings of the objects studied, as the chief part of the descriptive work. No mention is made of this in the programme for the Girls' Schools, but it by no means follows that no drawing is done in them.

So far as the writer has had any opportunity of judging, the methods of teaching Natural Science in Girls' Schools are expository only. In the official programme attention is called to the value of experiments and to training the pupils to carry them out for themselves, but for want of time and for other reasons, there appear to be difficulties in the way of encouraging girls to undertake practical work. All experiments required to illustrate the subject, or principle, being studied, are made by the teacher himself. The apparatus which he uses is carefully explained to the class, and understood by them. They realise the object of the experiment, and are frequently questioned in order to see if they follow its course correctly. All difficulties are explained away by the teacher, so that the pupils may be able to repeat the experiment themselves. But they are not encouraged to make original investigations on their own account; indeed, independent work in the laboratory seems quite unknown to the German schoolgirl. To impart even the most rudimentary knowledge of the vast subject entrusted to his charge, a teacher of exceptional ability and enthusiasm is needed. Still, no matter how good the material and apparatus at his disposal may be, it is plainly impossible that in large classes, with only two lessons a week, much practical work can be done by pupils individually. It is true that, especially in teaching of Physics, the girls are given oppor-

tunities for handling the apparatus, and assisting the teacher in h demonstration occasionally, perhaps of repeating the experiment, but the work is always done under the guidance of the teacher, and never partakes of the nature of independent research. As the programme indicates, very little prominence is given to teaching chemistry; it is only studied incidentally in connection with the rudiments of geology and mineralogy. But no matter what the subject, the methods of teaching remain in essentials the same: the pupil is not expected to solve problems experimentally for her own pleasure; the school is not the place for independent study; it is the duty of the teacher to guide his pupils along the right path, to prevent them from drawing wrong conclusions.

The course of study appointed for boys is more comprehensive than that for girls, and fewer limitations are imposed upon the teacher. Some stress is laid upon practical work, and, doubtless, far more is expected of the boys than of the girls. Speaking broadly, though the aim of teaching differs, the methods are much the same. Apart from pedagogical considerations, the teaching of natural science to boys has the practical end in view that they may receive such a training as will enable them, when they enter the University, to study any science intelligently. But even in their case very little practical work is done in the laboratory while at school. Mr. Russell's remarks upon the comparatively small part played by laboratory work in science teaching in German boys' schools, and the reasons for this, are of special interest here. He says: "The presence of splendid laboratories in most German schools shows that the present method of science teaching is a reaction against earlier notions concerning the function of laboratory practice. So long as the aim was to teach the sciences *per se*, laboratory work was necessary for each individual, but with the advent of the idea that the sciences are no more to be considered independent studies than any other subject of the curriculum, and that mental development of the pupil is of more consequence than definite information upon any one subject, class instruction comes to the foreground. Laboratory work is still deemed an exercise of great value, *but its aim is to facilitate application rather than to promote individual investigation.*" And, again, "Laboratory work, if done at all, is introduced so that pupils may duplicate the experiment performed by the teacher, or make other demonstrations putting to practical test the knowledge just acquired. The function of laboratory practice is to make application of facts already learned, not for the purpose of preventing new truths or arriving at new deductions."*

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* J. E. Russell, Ph.D.: *German Higher Schools.* Longmans.

APPENDIX IV

LIST OF BOOKS.

The following list of a few of the books and pamphlets consulted by the writer of this paper may be found useful for reference by students of the subject :—

Bestimmungen über das Mädchenschulwesen, die Lehrerinnenbildung und die Lehrerinnenprüfungen vom 31 Mai, 1894. (Hertz.)

Ordnung der Reifeprüfungen an den höheren Schulen. (Hertz.)

Lehrpläne und Lehraufgaben für die höheren Schulen. (Hertz.)

Die in Preussen geltenden Prüfungsordnungen für Lehrerinnen. (Weber.)

Prüfungsordnungen für die Kandidaten des höheren Lehramtes. (Hertz.)

Statistisches Jahrbuch der höheren Schulen. (Teubner.)

Handbuch des höheren Mädchenschulwesens : Dr. Wychgram.

Ziele und Wege der höheren Mädchenschulbildung : Prof. Dr. Ritter.

Von Weimar zu Weimar, 1872–1897 : Dr. W. Nöldeke.

Entwickelung und Stand des höheren Mädchenschulwesens in Deutschland : Frl. H. Lange.

Die Mittelschulen im Grossherzogtum Baden : Joos.

Knabenerziehung-Mädchenerziehung : Dr. Lüngen.

Der mündliche Vortrag und seine Pflege im Schulunterricht : Dr. Hessel.

Reports of Transactions of the "*Deutsche Verein für das höhere Mädchenschulwesen.*"

Files of *Die Mädchenschule* (ed., Dr. Hessel).

Files of *Zeitschrift für weibliche Bildung* (ed., Dr. Buchner).

Yearly Reports of a large number of the most important Girls' Secondary Schools and Training Colleges for Women Teachers in Germany.

German Higher Schools : J. E. Russell, Ph.D. (Longmans.)

APPENDIX V.

NEW REGULATIONS FOR HIGHER EXAMINATION FOR WOMEN TEACHERS.

Since this paper was written new Regulations for the Higher Examination for women teachers (Oberlehrerinnen-prüfung) have been issued by the Education Department at Berlin* These will come into force in April, 1901, and and will cancel and take the place of the former Regulations contained in the "Maibestimmungen" of 1894. By the new Regulations the standard of the examinations will be raised, their scope and the subjects proposed are more clearly defined and dealt with more in detail, and, on the whole, it may be said a distinct advance is marked.

In his preface to the new Regulations the present Minister of Education, Dr. Studt, remarks upon the steady progress of the higher education of women teachers since this examination was instituted seven years ago. The local school authorities have encouraged their best teachers to enter for it, and have often made it possible for them to attend the necessary *Fortbildungskursen.* Ninety-five candidates have passed the examination, and only six have failed—a very small proportion. The majority of students—sixty-one—chose German as one of their special subjects. Next to this came history, with thirty-eight candidates; English, with thirty-five; French, with thirty-one; religious knowledge, with fifteen. Only seven candidates took mathematics, two natural science, and one geography.

Dr. Studt sees no reason to modify or alter the existing regulations as to the qualifications of candidates who desire to prepare for this higher examination. He will not allow women who have been educated only at the Gymnasium or University to enter for it. As before, the training of the Higher School and *Seminar*, together with five years' practical experience in teaching, will be required of all candidates before they begin the necessary course of special study. Dr. Studt believes that successful candidates will be quite as fit to teach in the upper division of Higher Schools as men who have received a University education. He says that five years spent in teaching will enable a girl to find out in what subject she is best fitted to specialize, will reveal her weak points, will indicate in what her earlier education is lacking, and will afford the best basis for intellectual studies afterwards when her mind is more matured.

It is not possible to assign limits to the time to be spent in attending lectures for the examination. All depends upon the subjects chosen, the student's previous knowledge of them, her mental capacity, and the mode of teaching. It is certain that four or five semesters (about two years and a half) will be necessary, and perhaps longer.

Dr. Studt then points out that the education received at the *Seminar* will need to be supplemented in many important respects before the candidate is fitted to enter upon a course of higher study. A fair knowledge of Latin and Greek will be found necessary for some subjects; in modern languages, fluency in speaking gained by living abroad; in German a wide acquaintance not only with German literature, but also with the greatest English and classical authors (in translations); in history, familiarity with the works of some great historian. A beginning must have been made in science and mathematics, some practical work accomplished in physics and chemistry; in short, it is plain that a large portion of the five years intervening between the first examination and the com-

* See the July and August number of the *Centralblatt für die gesamte Unterrichts-Verwaltung in Preussen.*

mencement of the preparation for the second, must be spent in private study and working up the subjects in which the candidates intend to specialise hereafter.

Dr. Studt will not interfere in any way with the work being done in the various *Fortbildungskursen;* he fully recognises its value, and will lay down no rules to regulate it. He recommends that as much freedom as possible shall be allowed to the students, and that they shall be encouraged to work independently, and be trained in habits of self-reliance. No examination in pedagogy is prescribed, though students are advised to extend their knowledge of the subject by private reading. Finally, Dr. Studt observes that though the standard of the examination is raised, he believes, from experience, that it will not be found beyond the reach of able students.

The above is merely a brief abstract of Dr. Studt's remarks, which form instructive reading for those who are interested in the subject.

The new Regulations are, as has been said, much more detailed and more definite in purpose than the old. The aim of the examination, the mode of conducting it, the place, date, conditions of admission, the subjects, the qualifications of candidates, are clearly stated. There are several slight alterations which, however, are not of sufficient interest to English readers to dwell upon. The changes in the curriculum call for some remarks. There are nine subjects, or groups of subjects, from which *any two* may be chosen for study by the candidate. The subjects are: Religious Knowledge, German, History, French, English, Geography, Mathematics, Botany and Zoology, Physics and Chemistry, together with Mineralogy, a more extensive curriculum, it will be noticed, than formerly. The examination itself is, as before, in two parts, written and oral. Only those candidates who satisfy the examiners in the written work will be admitted to the oral examination. In future at the oral examination each candidate must show that she has some knowledge of History and of Philosophy, of the outlines of Logic and Psychology, and that she has read and understood some important work on Philosophy. Although a free choice of subjects is left to the candidate, certain combinations of them are suggested as being most useful for educational purposes.

It is not possible to quote here the course prescribed in each subject; it is enough to say that the work is extremely comprehensive, and, at the same time, extremely thorough. Success at the examinations will imply a high standard of mental attainment in the students. A candidate who fails to pass is allowed, after a year has passed, to take the examination once more. If she is again unsuccessful, a further attempt will not be permitted. The successful candidate receives a certificate, in which all particulars about the examination, the subjects taken, and degree of success attained in each, are clearly stated. This certificate at once qualifies the holder to be appointed teacher in the upper division of a public Higher School for girls. Those who desire an appointment as Head of a school have still the *Vorsteherinnenprüfung* * to pass, if they happen not to have taken it before the Higher Examination. This accomplished, and further necessary experience in teaching gained, there is now nothing to legally disqualify women for promotion to the most important posts in secondary schools for girls in Germany.

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* See Section VII. above.

THE SMALLER PUBLIC ELEMENTARY SCHOOLS OF PRUSSIA AND SAXONY.

WITH NOTES ON THE TRAINING AND POSITION OF TEACHERS.

THE SMALLER PUBLIC ELEMENTARY SCHOOLS OF PRUSSIA AND SAXONY WITH NOTES ON THE TRAINING AND POSITION OF TEACHERS.

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SUMMARY.

THE SMALLER PUBLIC ELEMENTARY SCHOOLS OF PRUSSIA AND SAXONY; WITH NOTES ON THE TRAINING AND POSITION OF TEACHERS.

PRUSSIA.

I. HISTORICAL SURVEY.

Every Elementary School system is an organic growth, a product of political and economic history, as much as any other feature of national life; and that of Prussia, shaped by forces other than those which are potent in England, has taken a characteristic outward form little in harmony with the traditions and needs of this country. But it is much older than our own; it has long been supported by a conviction not yet rooted in our soil that Elementary Education is an essential factor in national progress. It has far greater inward unity, because educational principle is much more settled and more widely diffused, and the general acceptance of a definite aim and plan shuts out the disturbing agency of fluid and vacillating opinion. At the same time, its very age is responsible for some difficulties of a traditional nature and not incidental to more modern growths. Contrasts present themselves at all points; and the Prussian system is fruitful in interest and suggestion, not because it resembles, but because it is unlike our own, both in its past history, and in its existing merits and defects.

Luther's famous letter of 1524 exhorted the councils of all German towns to show much diligence in the care of the young; and in the two hundred years which followed various attempts were made to establish a system of schools, without definite result. The first school law dates from Frederick William I., who in 1717 ordered that all children should attend school, *where schools existed*, every day in the winter, and in summer at least one or twice in the week. The fee was fixed at 5 pf. (½d.) a week. In 1736 edicts requiring the establishment of schools were issued, not however for the whole Monarchy, but for certain provinces, and in 1737 the King granted 50,000 thalers for the support of education. Frederick the Great followed in the footsteps of his father. The "General-Land-Schul-Reglement" of 1763 ordered that children should go to school when five, and stay as a rule till thirteen or fourteen, or till they should have acquired a sufficiency of knowledge. The teacher's salary was based upon fees, which were in winter 6 pf. a week till the child could read, then 9 pf., and 1 groschen (or 12 pf.), when it could read and do Arithmetic. In summer the fees were reduced to two-thirds of these amounts. Punishment for non-attendance,

the examination and supervision of teachers, the course of instruction, the character of the reading books, and the assistance of very poor children, were points carefully provided for; and it is upon the general lines of this Order that the Prussian system has ever since proceeded.

But these enactments were obviously one-sided. They prescribed obligatory attendance without imposing the corresponding obligation to provide schools. This defect was remedied by the "Allgemeines Landrecht" of 1794, which laid the duty of providing and maintaining schools upon the heads of houses (Hausväter) in every place. This law prescribes the completion of the fifth year as the age for going to school; but it mentions no age whatever for leaving it. "Instruction must continue until a child in the opinion of his spiritual pastor has acquired the knowledge necessary for a person of ordinary capacity in his own station of life." The democratic movement of the end of the eighteenth century led to the abolition of serfdom and the grant of self-government to the towns; the experiences of the Napoleonic years of trouble brought with them at any rate this advantage, that they directed the eyes of the Government to the point from which the new birth of Prussia must begin. Even during the war, Frederick William III. had sent Germans to Switzerland to study in Pestalozzi's school, and had imported foreign teachers from abroad. Measures for the organisation of school affairs followed in rapid succession. In 1811 and 1812 Schulvorstände were appointed for the country, and Schuldeputationen for the towns. In 1817 the State business of Education was transferred from the Home Office to a separate Ministry. And in the same year the King promised a general Education Law. This promise was not carried out; and though repeated in the Constitution of 1850, it still remains unfulfilled.

The year 1825 is the date of a Cabinet Order of Frederick William III. imposing the obligation to attend school in a somewhat stronger form, and extending it to the new Provinces; and from this date it may be said that effective compulsion has existed in Prussia. In the same year the duties of the Regierung and of the Provinzial-Schul-Kollegium were defined. In 1850 the Act of Constitution declared teachers civil servants, and elementary education free; but the general abolition of fees was not carried out until 1888. Complaints in the Landtag in 1859 led to alterations in the character and amount of the religious instruction: and a Commission which reported in 1862 brought about a resolution of the House in favour of local self-government, of appointment of teachers by the localities, and of the employment of experts instead of Churchmen as inspectors.

But the most momentous event in recent years was the passing of the Schulaufsichtsgesetz in 1872, which re-asserted the absolute right of the State alone to the supervision of the schools. It had become necessary, in consequence of the declaration of Papal infallibility in 1870, to guard against a threatened *imperium in imperio* by the distinct limitation of the authority of the clergy, which had hitherto been paramount. In

the autumn of the same year appeared the Allgemeine Bestimmungen, of which the distinctive features were a further reduction of the amount of time to be devoted to religious instruction, and a much higher tone with regard to education generally. This brief Code is still in force, though its provisions have in some details been modified by subsequent orders, and supplemented by the instructions issued through the provincial authorities.

The periods of greatest activity in this long history are those which followed upon great national events—the Napoleonic wars, the revolutionary period of 1848, and the war of 1870. The development of the training colleges has followed a similar chronological course. The earliest was founded in 1748, and only twelve were established in the eighteenth century. Fourteen were founded between 1811 and 1828, twenty between 1846 and 1870; and the increase in the number of students since 1870 has been 135 per cent (as against an increase in population of 29 per cent.).

A contemporary picture of the state of education in 1804, by Karl Wilhelm von Türk, gives a woeful impression of its neglected condition at that time, due no doubt in great part to the impoverishment of the country by war. In those parts of the country to which the Allgemeines Landrecht of 1794 did not apply, the provision of schools was extremely defective. Thus, in the Regierungsbezirk Aachen there was in 1824 a deficiency of 38,005, for a child population of 66,611. The position of the teachers was no less deplorable. In 1820 no fewer than 1,180 country teachers received less than 20 thalers a year. The growth of the Prussian system has not been the work of a day. A period of 181 years has passed since the first Royal Order for school attendance; the duty of providing schools has been imposed for 104 years; and compulsory attendance has been effective for 63 years in the greater part of the existing kingdom. That growth has been interrupted by war, complicated by additions of territory, and hindered by political strife—and it has not yet attained perfection. No general Education Law has ever been passed; varying provincial laws, ministerial and provincial edicts, Orders in Council, and decisions of courts of law, form a vast heterogeneous body of prescription, which is confusing and often uncertain in its operation. Political causes have led to the defeat of all the general Education Bills hitherto proposed, and though regular school attendance is firmly established, the need of an adequate supply of schools, teachers, and school apparatus, which is the logical corollary of compulsory attendance, has not yet really been met.

II. Administration of Rural Schools.

The central authority for Education is the Ministerium der Geistlichen, Unterrichts-, und Medizinal-Angelegenheiten in Berlin, the composition of which has been described in Vol. I. of "Special Reports on Educational Subjects," page 385. Under

the Ministerium stands first the Provinzial-Schul-Kollegium, the chairman of which is the Oberpräsident of the Province. The Schul-Kollegium consists usually of four or five Räte, some of whom (generally ex-directors of Training Colleges) look after the Seminare, while the others (generally ex-directors of Gymnasien) take charge of the affairs of the Gymnasien and Real-Schulen. Thus the Provinzial-Schul-Kollegium manages the higher places of education, and has few duties connected with the elementary schools.

Secondly, each Province is divided into Governments (Regierungen) for purposes of general administration; and in each Regierung there is a section (Abteilung II.) consisting of three or four, or sometimes fewer, Schulräte, which controls the elementary schools. These Räte are generally ex-directors of Training Colleges or ex-inspectors, and they are, like the Provinzial-Schulräte, the appointed and paid officers of the Government.

The officers immediately under the Regierung are the Kreisschulinspektor and the Landrat. Each Regierung is divided into several Kreise or districts, of which the Landrat is the administrative officer. His connection with the schools relates only to externals—buildings and repairs and such matters. The Kreisschulinspektor, who is appointed by the central office in Berlin, has to do with instruction, discipline, and organisation, and the whole management of the school, including the conduct of the teacher outside its walls.

Under the Kreisschulinspektor there is for every school an unpaid Local Inspector (Ortsschulinspektor), whose duties resemble those of the "correspondent" in England. He is almost always the local clergyman, unless, as is sometimes the case, especially in Catholic districts, he refuses or is considered unfit to discharge the duties of this office. The Local Inspector is the chairman of the Schulvorstand or Committee, consisting of prominent persons in the place, and of late years often including the Teacher. The duties of this Committee, elected by the Schulgemeinde, are not so much to supervise the interior working of a school as to deal with questions of attendance and maintenance.

The Schulgemeinde is a community which need not be coincident with the political community. It may be larger, if the children of several hamlets attend one school; or smaller, if there is more than one religious community within one place and the political authority allows them to raise funds separately.

Every person who pays taxes to the State has to contribute to the support of a school; and the aggregate contributions of the localities greatly exceed the grant from the State. The Teacher is a civil servant, and the subordinate officer of the Local Inspector.

Thus with a long chain of officials from the Minister to the Teacher, the system presents itself at first sight as purely centralised and bureaucratic. But there are some qualifications to this view. First, the locality has in numerous cases a greater or

less voice in the appointment of the teacher, which however must be confirmed by the Regierung; it also determines the amount of his salary, so far as regards any payments in excess of the legal minimum.

Secondly, the devolution of power to the Regierung, which administers school business by means of paid experts, relieves the central office of a vast amount of detail. It is the Regierung that receives the reports of inspectors, issues instructions to inspectors and teachers, and arranges many details of teaching, under the general limitations of ministerial orders.* The length to which prescription of syllabuses, time tables, and methods is carried varies in different places, and in some it may possibly go too far. But in some at any rate the teachers are specially called into consultation upon questions affecting their schools; and they all have frequent opportunities of expressing their wishes at the conferences which are regularly held under the presidency of the inspector.

III.—Inspection.

For purposes of school inspection each Regierung in a Province is divided into Kreise, which may or may not correspond with the political Kreise. Omitting Berlin, which has a special organisation, there are in Prussia 13 Provinces, with 35 Regierungen and 561 Kreise. The total population exclusive of Berlin was, in 1895, 30,187,819. So that the average population of a Regierung is rather over 862,000, and that of a political Kreis rather under 54,000. The number of Inspectors (Kreisschulinspektoren) is 1,263.

Of these 1,263 only 277 are full government officials † permanently appointed, with the status of civil servants. The other 986 perform their duties of inspection merely as a bye-work which occupies them three or four weeks in the year, and are removable at any time. They are mostly evangelical clergymen holding the office of "Superintendent" in the Church, and their ecclesiastical work is their main occupation. Their only qualification for their educational post is their experience during the six weeks which all candidates for ordination have to spend at a Training College. Their appointment under the Act of 1872 is a concession partly to the influence of the Church, partly to considerations of economy. It is only where special measures have been necessary in consequence (as in Catholic districts) of the attitude of the clergy towards the State, or of exceptional educational backwardness, or of great increase of population, that permanent inspectors have been appointed for country districts.

* In many subjects, the Regierung is thus able to adapt the syllabus to the circumstances of the locality. For an example of such adaptation, see the Geography course prescribed in the Coblenz Regierung below, p. 321.

† The Town Inspectors are included in this statement, but as officials paid by the towns, though technically appointed by the State, they are not full civil servants. They are returned as permanent officials in *Preussische Statistik* (page 50), but as Inspektoren im Nebenamt in the official *Centralblatt*.

Of this clerical inspection Dr. Rein says,* "It has in many ways hindered the development of the School, and called into existence and intensified an estrangement between Church and School, Clergy and Teachers." It is the object of frequent attacks in educational literature, and of bitter complaint on the part of the teachers.

Of the permanent inspectors about one-half are graduates, one-half have been teachers in Training Colleges, or Rectors (that is, Headmasters) of large elementary schools. All have been teachers in some capacity. If their teaching experience has been gained in higher schools (Gymnasien) they are sent to spend some months in a Training College as "guests" before beginning their official work, and at first they are provisionally appointed. The number of schools under the charge of a permanent inspector is not large; forty or fifty, including ten or twelve private schools, would be an ordinary total; but the unit of calculation is rather the "class" (in the German sense) than the school; and the inspection of a class, or perhaps two classes, is regarded as sufficient for a day's work. The inspector does not usually report on all classes every year, and his reports go to the Regierung, not, except in special cases, either to the Ministerium or to the school. But he has multifarious duties besides that of inspection, and he is unassisted, except that town inspectors sometimes have one or two clerks. Leave of absence for teachers, the supply of vacant posts, questions of discipline affecting teachers, and the efficiency of the Local Inspector, are all matters with which he has to deal. He has also to hold periodical conferences with teachers, which vary a good deal in number. In one district which I visited the inspector holds seventeen every year,—one Kreis-Conferenz at which all the teachers of the district assemble, and four in each of four sub-divisions of the district. The programme of each conference is the same:—

1. A lesson given by a teacher (Lehrprobe).
2. A discussion of the lesson.
3. A paper on an educational subject.
4. A discussion of the paper.

In other districts there are only four, and an educational picnic sometimes takes the place of one of them. The State defrays the expenses of the teachers, and it appears from the reports of the Regierungen that these conferences are regarded as very valuable.

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* In his article *Strömungen auf dem Gebiet des deutschen Schulwesens*, in Vol. 3 of "Special Reports on Educational Subjects."

IV.—Teaching Strength. Position and Characteristics of the Prussian Teacher.

In 1896 there were in Prussia 78,959 fully employed teachers in elementary schools, besides 39,944 not fully employed (34,270 for needlework, 4,659 for the religious instruction of minorities, and the rest for special subjects); the latter category need not be considered here.

Of the 78,959 fully employed teachers (all adults), 97·5 per cent. had been trained and had passed full examinations; 0·33 men and 1·10 women had passed no educational examination; the small remaining fraction had passed a special technical examination.

In England and Wales in the same year there were 56,712 certificated teachers, 25,393 uncertificated assistant teachers, and 12,838 teachers (women under Article 68), who had passed no examination. Thus, of 94,943 adults, approximately

60 per cent. were certificated (of whom rather over half were also trained);

27 per cent. were qualified by examination for assistantship;

13 per cent. were without qualification.

The proportion of men and women was:—

In Prussia—

—	Whole State.	Towns.	Country.*
Men - - -	87 per cent.	78 per cent.	92.5 per cent.
Women - -	13 ,,	22 ,,	7·5

In England and Wales (adults only):—

Men, 28 per cent.

Women, 72 per cent.

The proportion of teachers to children was, in Prussia (with 5,236,826 children), 1 to 66; in England (with 5,422,989 children), 1 adult to 57 children.

Thus the main differences between the teaching staffs of England and Prussia are (i.) that in Prussia only adult teachers are employed; (ii.) that nearly all are fully qualified, and very few untrained; (iii.) that the proportion of men is very much larger; (iv.) that the total number of teachers is much smaller.

* It is useful occasionally to give the Prussian figures for town and country separately; but the distinction between "Dorf" and "Stadt" is somewhat arbitrary, and the returns for "country" in the statistics include many schools in large Dörfer, and especially in suburbs of large towns, which we should call town schools. Of all elementary schools, 88 per cent. are returned as country schools; 12 per cent. as town schools.

Women are never placed in sole charge of a school. They are employed more in Catholic than in Evangelical districts, and more in towns than in the country. There is much interest in a passage from *Preussische Statistik* which gives the official view of women as teachers: "That boys and girls should always and in all subjects learn from teachers of their own sex, cannot be maintained. It is, in fact, most desirable that in girls' schools some subjects should be undertaken by men. And it would be no less advantageous that every boy in the course of his school-life should come into contact with the moral and intellectual guidance of women. That in many localities there is only a thin sprinkling of posts open to women, and that it is the Evangelical parishes which to such a disproportionate extent show themselves unwilling to go forward in this matter, is an evil which cannot be justified or palliated.

"We complain bitterly of the want of patriotic feeling in our broader social strata, and we would fain remove the mischief by means of patriotic speeches, festivals, and games. But so long as the women of those broader strata do not embrace the German Fatherland with their hearts, it is all love's labour lost.

"Woman is pre-eminently the vehicle of the national idea, but to this sentiment she must be trained; and it is well worth noting, that amongst those peoples whose patriotism seems to be most deeply rooted, any other training of the female sex than by means of female teachers is almost unheard of. It is true that men can upon occasion discourse at least as well, and perhaps with more fire than women, about the Fatherland, love of freedom, and the national sentiment; but it remains a fact that during the years of tutelage it is only from the views of which women are the exponents that the opinions and feelings of their own sex derive lasting impressions." It does not, however, strike a foreigner that want of patriotism is a Prussian failing.

As soon as a teacher receives a definitive appointment, he becomes a civil servant* with a right to the minimum salary and increments fixed by law, to a pension, and to a certain provision for his widow and children if he dies. He cannot be removed from office except for misconduct,† and this right he cannot in any case contract away. He may be, but seldom is, removed to another school by the Regierung "in the interests of the service," but his salary must not suffer. He can change his school if he wishes to do so, with the consent of the Regierung or the two Regierungen concerned. He is privileged in that he has security of tenure, position, and prospects, but as an official he has to conform strictly to orders; he is not at liberty to choose his school in his earlier years, or to take any appointment without the consent of the authorities.

There is nothing in Prussia which exactly corresponds to the

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* Not a full civil servant, but as he is paid partly out of other than State funds, "Mittelbarer Beamte." Rectors, however, and Tutors in the Training College, are full civil servants.

† Women who marry are considered to alter the conditions of their appointment, and they vacate office *ipso facto*.

office of Assistant Teacher, certificated or otherwise, in England. All teachers are alike officials, and to a great extent independent. In a school with two classes, the First Teacher usually has no authority whatever over the second. He is merely *primus inter pares*, and though he may influence his colleague, he has no power to direct him. The school is held together by the official instructions, by the general unity of the Teacher's training, and in theory at least by the oversight of the Local Inspector. A Head Teacher (Hauptlehrer) is often appointed for a school of three, four, or five classes; for a school of six or more classes a Rector must be appointed. The Hauptlehrer has some powers of supervision over the instruction in the classes of the other teachers, but his relation to them is still to be that of a guiding colleague (eines leitenden Kollegen).* The Rector has more authority, and takes the place (as the Hauptlehrer does not) of the Local Inspector.

No account is taken here of the partly employed teachers (for needlework, &c.) previously mentioned. The Hilfslehrer (662 men and 142 women), many of whom have passed the first examination, need not be considered, since they form only 1 per cent. of the total number.†

The assured position of the teacher is a very important point in the Prussian system, because it has much to do with the attractiveness of the teacher's office, and therefore with the maintenance of the teaching strength. As before stated, 87 per cent. of the teachers are men, and there is no difficulty whatever in filling the Präparandenanstalten and the Training Colleges. Wherever I have had any opportunity of enquiring, I have been told that the demand exceeds the supply of places. The reasons for this were thus summed up for me by a high authority:—

(1) The teacher's pay (especially since the law of 1897 came into operation) is not bad for Germany.

(2) He has a definite position, definite rights as a civil servant, and a fixed pension. His office is respected, and his position in villages is next to the clergyman's.

(3) He frequently makes an advantageous marriage in country places.

(4) There are no barriers. A teacher may become a Rector or a Schulrat. A Rector in Berlin gets £175 to £225 a year, with a house worth £40. The pay of a Schulrat is from £225 to £250.

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* "Steht neben den übrigen Lehrern als Berather, nicht über ihnen als Vorgesetzter." Instructions for Hauptlehrer in the Regierungsbezirk Merseburg, § 3.

† The "Helfersystem" (employment of monitors), which is often discussed in treatises as if in full vitality, is practically dead. I have actually seen only one trace of it, and repeated enquiries have brought the invariable answer that it is generally discarded, though perhaps a few very old teachers may still make use of it.

The following figures show (for 1896) the classes of society from which the teachers are drawn, according to the occupations of their parents:—

Parents Engaged in	Men.	Women.
Husbandry	34 per cent.	15 per cent.
Mining, building, and other industries	27 ,, ,,	28 ,, ,,
Trade	9 ,, ,,	18 ,, ,,
Professions or lower official positions	25 ,, ,,	32 ,, ,,
Other callings	5 ,, ,,	7 ,, ,,

Thus it is the agricultural class that contributes most largely in the case of men, the official and professional class in that of women.

The pay of teachers was originally derived entirely from school fees, and reference has already been made to the miserable pittance which many of them received eighty years ago. In 1888 fees were abolished, and a State contribution towards salary of £25 for the first master, £15 for others, and £7 10s. for mistresses, was granted in compensation. But in 1896 many salaries were still very low. The following table shows the range of total incomes at that date (including the estimated value of house accommodation and firing):—

	Men.		Women.	
	Town.	Country.	Town.	Country.
Under £45	2·59 p.c.	11·68 p.c.	10·62 p.c.	17·82 p.c.
£45 to £90	43·14 ,,	74·50 ,,	77·74 ,,	80·75 ,,
£90 to £120	28·03 ,,	11·18 ,,	11·33 ,,	1·43 ,,
£120 to £150	17·11 ,,	2·36 ,,	·31 ,,	—
Over £150	9·13 ,,	·28 ,,	-	—

The general averages were:—

	Men.	Women.
	£	£
Town	101	66
Country	68	57
Whole of Prussia ...	79	64

The law of March 3, 1897, establishes (1) a fixed initial salary (Grundgehalt), not including house, or church emoluments, of at least £45 for men and £35 for women. Teachers provisionally employed, or of less than four years' service, receive less by one fifth, provided that women are not to get less than £35 in any case;

(2) increments (Alterszulagen) of at least £5 for men and £3 for women, to be added every three years after seven years' service, with a maximum limit of £45 for men and £36 for women. Thus a man after thirty-one years' service must get at least £90, and a woman at least £71, besides house accommodation. But I have noted many cases in which the actual amounts are very much higher.

No statistics of the salaries paid under this law are yet in existence. It cannot fail to effect great improvement in those parts of the country, such as Ostpreussen, Westpreussen, Pomerania, and Posen, where the average country incomes from all professional sources formerly ranged in several Regierungen from £35 to £40. But, on the other hand, some of the better paid teachers are apprehensive lest the legal minimum should become the standard rate.

The teacher's duties as sacristan (Kirchendienste), to which reference has been made, are a survival of the old connection between Church and School. In 33·7 per cent. of the Evangelical schools they are permanently attached to the post of schoolmaster, and in many other cases they are optionally discharged by Evangelical or Catholic teachers.

A distinction is made between the higher duties, such as training the choir, playing the organ, and seeing that church and altar are duly ordered for service; and the lower, which include ringing the bells, opening and closing, warming and lighting the church, and keeping the churchyard in order. The latter are seldom discharged by the teacher personally, and the Ministry has ordered that they are in future to be severed as far as possible from his office; but he provides for their discharge by others. The higher duties he retains in his own hands. In some cases he reads the service in church on alternate Sundays. The average payment for Kirchendienste (which must be additional to the fixed minimum salary) is £16 a year for the whole country.

The land with which by old custom the country teacher is provided, in order that he may be able to supply himself with the necessaries of life, varies greatly in extent, and is not, like the Kirchendienste, a source of additional income. Its estimated proceeds are included in the Grundgehalt. The majority of teachers now let their land, but there are still some who farm it themselves, rising early in the mornings, and taking advantage of their afternoon freedom in summer. Many of them also, with the consent of the authority, undertake private teaching and other unofficial work.

The retiring pension, payable on the ground of health after ten years, and in any case at the age of 65, is of course a consideration of much importance. Beginning at $\frac{15}{60}$ of the teacher's salary, after ten years it rises by $\frac{1}{60}$ each year to $\frac{45}{60}$; a maximum of £30 is paid by the State, and the rest by the locality.

Provision is also made by the State for the family of a teacher who dies, to the yearly extent of £12 10s. for the widow, and

£2 10s. for each child if the mother is living; otherwise, £4 4s. the payment ceasing when the child reaches eighteen.

Another privilege which the teacher has hitherto enjoyed is in future to be curtailed. Till the present he has escaped with ten weeks of military training instead of two years. But in accordance with a Royal Order of 1895, every schoolmaster is from the year 1900 to serve for twelve months; and it has been necessary to prepare for this change by the establishment of extra classes in the Training Colleges.

It might perhaps be thought from a perusal of various instructions that the Schoolmaster is oppressed by extraneous responsibilities. He is expected to watch over and control the conduct of the children out of school, to arrange and take part in their festivities, and preserve good order, and to show interest in the continuance of their education when their school life is over. But he looks upon such duties as the incidents of his official rank; and if official rank in Germany has a social value, so also it implies a public position, by which private life is in great measure absorbed.

The German teacher has much more professional consciousness than his counterpart in England. He is a functionary of State, poor but proud, and almost as irremoveable as the State itself; a member of a body corporate; and so accustomed to the idea of the oneness of principle in education, that he regards prescription not as an interference with his liberty, but as the expression of an established conviction which he understands and shares. He is not allowed to teach till his mind and body are mature, and he is old enough to understand what teaching means. But from the first he sees set before him a clear educational aim, and a beaten track by which it is to be reached. Gifted or not gifted, he is always formed. Whatever the metal, the coin comes from the mint.

That there are admirable teachers in England, and many of them, is very certain. It would be strange if it were otherwise. But they are more the products of nature than the work of a system.

The English teacher is not necessarily certificated. If certificated, he may or may not have passed through a Training College; and in the latter case it is uncertain in what pædagogic principles his college puts its trust; how far it is a homogeneous organism, of which the Practising Schools form an essential part; or how far, on the other hand, it is a loosely knit concourse of various teaching forces, including a school or two which are conducted as the different Head Teachers think best, and in which the students make disconnected experiments rather than learn how to fit themselves into a course of instruction intended for the benefit of children. Or, if he has not been trained, no one is responsible for his ways, which may be good, bad, or indifferent, but in any case are fortuitous.

He has in most cases been a Pupil Teacher, and his circumstances in that capacity may have been favourable, or the reverse. His sympathies may have been hardened by premature

responsibility and strain, or he may have acquired ideas and practices which he finds it difficult to unlearn. The empiricism of early years tends always to persist.

In the exercise of his functions as a Head Teacher he is liable to distracting influences, side-winds which blow him out of the straight course. He may be led by considerations of grant to teach more subjects than enough, or, if he is capriciously disposed, to change methods or subjects upon slight grounds; and it is the consequence of payment by results that he is apt to think more of teaching than of training. He has neither the solidarity nor the steady aim of the German teacher.

The greatest strength of the latter seems to me to lie in his power of exposition and his appreciation of his own language and literature—a direction in which the average English teacher is perhaps least strong. It is impossible not to be struck on the one hand with his facility in expression, his ability to expound a piece of literature in all its lights, to discourse on a passage of History or a point in Geography or Science; and, on the other hand, with the care he takes to inculcate respect for the mother-tongue upon his pupils.

He has often a very heavy burden of work—more than he can possibly do well; but even when the state of his exercise books and other indications show that he does not adequately perform his whole task, he is nevertheless able to hold his class attentive as soon as he begins an oral lesson. The eager faces and engrossed expression of the children in the best schools impress themselves on the observer's memory.

In good schools he is another illustration of the truth that the personality of the teacher is what matters most. For though he always has a room to himself, and is so far at an advantage, he is very little helped by his environment. German school-rooms cover about the same area as class-rooms for 60 to 100 in England.* They are ceiled to the wall-plate, often low-roofed and extremely deficient in ventilation. They are well warmed, frequently indeed far too hot, but at any rate the children seem to work more comfortably in heat than they do in a low temperature with a free play of draughts. The desks are usually arranged eight or nine deep, and, if the room is oblong, in one block across it, so that the teacher has his raised platform at one end, with the children of all ages in an undivided group before him. A German teacher sees no inconvenience in this plan. It has grown up with the system, in itself excellent, of one room to one man, and it does not seem to cause him any particular difficulty. The bareness of the plastered walls is only relieved by two or three pictures—nearly always of a past or present Emperor, or of Luther, or of the Diet of Worms. The maps, which are kept folded, are few, usually very good in execution, but not always in serviceable condition. The illustrative apparatus is in general miserably scanty; cloak-rooms are seldom

* The length of a school room in Prussia must not exceed 9 metres. The area per child must be at least ·6 of a metre, or 6·3 English square feet.

found, but hooks for hats and coats are provided in the school-room itself. The playgrounds and office arrangements are certainly most indifferent.* Our English country schools are comparatively sumptuous as regards buildings and their condition, teaching apparatus, and premises.

V.—School Attendance.

The State takes cognisance of all elementary instruction, public and private. Private schools are systematically inspected, and the inspectors have power, though it is not often exercised, to inquire into the teaching of children in their own homes. In course of time the school age has become fixed at 6–14, not by any general law, but partly by separate laws affecting various parts of the kingdom, partly by the practice of the Regierungen as confirmed by legal decisions.

Children are admitted in the towns usually twice a year, at Easter and Michaelmas; and in the country once a year, at Easter. If a child's sixth birthday falls before June 1st, he has to go to school at Easter in the same year; if after June 1st, at the succeeding Easter. He is released from school at the corresponding date eight years later. Very few exceptions are allowed; but in rare cases a child is permitted to defer entry on account of bodily weakness or to leave in the course of his last year on the ground of poverty or other pressing circumstances. The total number of these exceptions is only 1·28 per cent. of the number of enrolled children.

The following figures give the statistics of attendance for the whole of Prussia, so far as available:—

Population in 1895	31,855,123		
A. Total number of children of school age ...	5,602,093		
B. Assigned to Public Elementary Schools ...	5,313,037	= 94·9	p.c. of A.
In attendance	5,236,826	= 98·49	p.c. of B.
Not in attendance	80,211	= 1·51	p.c. of B.
Of the children not in attendance there were—			
(1) Excluded through lack of accommodation		·04	
(2) Permitted to enter late or leave early		1·28	
(3) Excluded on account of bodily or mental weakness		·18	
(4) Absentees without leave		·01	
		1·51	
C. Taught in schools with the aim of the Public Elementary School...	57,803	= 1	p.c. of A.
D. Taught in higher schools or at home	227,253	= 4	p.c. of A.

There are no data at all corresponding with our returns of daily average attendance. As there are no grants dependent upon average attendance, there is no registration for the purpose of ascertaining it. The attendance register (Versäumnissliste) is a record of absence only. As a rule, at any rate in the schools

* These criticisms refer of course to rural schools only.

which I have seen, the names are not called, but the teacher merely ascertains by inquiry, in the course of the meeting, and not before it begins, what children are absent. I have only once heard the names called through. Lateness is rebuked, but the child is nevertheless considered to make an attendance.

Still there can be no doubt that attendance at school is, on the whole, extremely regular. The existence of compulsion in some form since 1717, and of effective compulsion since 1825, has had its effect. Public opinion is in favour of regularity. Parents understand their obligation to send their children; and they know that if they disregard it they will not escape speedy and automatic punishment. Every fortnight a duplicate of the pages in the register covered by the period is sent to the Local Inspector, who signs and forwards it to the Gemeinde-Vorsteher, or chief of local police. Generally one or two warnings are given to the parent, but no case of absence without excuse is passed over, and when a fine or corresponding imprisonment is deserved, it is inflicted by the police as a matter of course. The amount of the fine at present varies very much under different local laws. Fines are, however, seldom necessary, at all events in the country. One teacher told me that during his charge of his school (five years) he had had no case of fine; another had only one to record in twenty-two years; another, no case in fifteen years. Two or three notifications of absence without excuse in a year seem to be regarded as an average amount.

It must be remembered that unpunctuality is possible, and that many teachers do not observe the clock as our English teachers are obliged to do, though in the best schools the children are not late. And it is a very important fact in regard to attendance that German rural families live much more within the villages, and much less in scattered houses on the farms and roadsides, than English families. In answer to enquiries, I have almost always been told that the whole of the children live in the village; and the total number returned officially as having to go more than 2½ kilometres (rather over 1½ miles) is 202,320, or ·038 of the total in attendance. Again the *number* of schools in Prussia is much larger than in England, there being a considerably greater proportion of very small schools.* In 1896 there were 2,344 with less than 30 children, and 827 with less than 20 children.

Capricious change of school is practically obviated everywhere. If the parents change their residence a Form is filled up (Abgangszeugniss or Umschulungsschein), which sometimes states the class, attainments, conduct, and religious denomination of the child; the time during which he has attended, and his reason for leaving; sometimes the reason for leaving alone. Even so, if the change of residence is from one part of a town to another, the child generally has to attend the old school till the end of the term, that is till Easter or Michaelmas. Children are

* In 1896 there were in Prussia 36,136 schools, in England and Wales 19,848. The population of Prussia was 31,855,133, that of England and Wales 30,800,522.

assigned to particular schools, and may not attend any other without leave. A child attending the school of another Gemeinde pays a fee of 1*s.* to 2*s.* 6*d.* a month, but otherwise Elementary Education is free. The parents, however, except in cases of great poverty, have to provide books and slates and other similar necessaries.

Thus the teacher enjoys advantages which have not been yet attained in England. He is protected against avoidable irregularity and capricious migration. He admits children at fixed dates only, and he knows that he will retain them till their school age is over.

The advantages of the teacher are also the advantages of the child. If a scholar is obliged to change his school, he at any rate finds the same subjects being taught, the same, or nearly the same, point in the instruction reached, and similar principles and methods at work. A new school does not mean temporary confusion of his school life.

When he leaves school altogether he receives a leaving certificate (Schulentlassungszeugniss), which states his date of birth, religious denomination, period of attendance, attainments, and conduct. The teacher draws up this document, and the Local Inspector countersigns it. It is not such a report as the District Inspector could give, but much more complete and valuable. It takes account of a child's whole school career, of his whole intellectual and moral status. An inspector's report must necessarily be confined to the intellectual side, and to a very partial survey even of that. He may judge masses of children, but he can form no safe estimate of individuals that goes beyond a valueless minimum.

VI.—Types of Schools. Normal and Abnormal Classes.

There are no infants' schools recognised by the State in Prussia; but in towns there exist a certain number of establishments where children are taken care of, and rather employed (with more or less adherence to Fröbel's methods) than taught. These institutions are some of them private ventures, some of them supported by charity. At any rate they are inadequate, and the need of a better infants' school system is generally admitted; but the cost of establishing such a system on a basis of State support is at present regarded as deterrent.

The day schools (for children between six and fourteen) are the Public Elementary Schools (Öffentliche Volksschulen), where no fees are paid, and the Mittelsschulen and höhere Mädchenschulen, where fees are charged, and a higher course of instruction is provided. As the two latter classes are found only in towns, and have no counterpart in England, they need not be further noticed in this paper.

The Volksschulen are denominational *i.e.* Evangelical, Catholic,* Jewish, or mixed. Mixed (paritätische or simultane) schools are those in which the separate religious instruction of minorities is

* There are only 12 schools of other Christian denominations.

provided for by the employment of teachers of different denominations. In some Regierungen, *e.g.*, Coblenz, the paritätische Schule has given place to separate denominational schools, and there are in Prussia only 680 schools of this kind, in comparison with 24,487 Evangelical, 10,725 Catholic, and 246 Jewish. The Regierungen have to regard the religion of the place in the appointment of the teacher, and the religious instruction of small minorities is provided for. If ten or fifteen children in a school are of a recognised religion other than that which is taught in it, the locality has to provide for their separate instruction, either by bringing a teacher to them, or by sending them to a teacher. And if the parents do not profess a religion recognised by the State, they are obliged either to produce a written certificate that their children have religious instruction elsewhere, or to send them to receive that of the school.

No State system of continuation schools exists in Prussia. Such schools have been developed mainly in towns, by the municipalities and by employers of labour, and for the most part on technical lines. The total number of country continuation schools is only 850, with 13,000 scholars; but amongst advanced educationists there are many who desire a general system of compulsion analogous to that of Saxony and other German States.

The term "Klasse" does not correspond exactly with our word "Class." It means any group of children taught by one teacher at one time. In an *einklassige*, or "one-class" school, the whole school is the class. If the school has two classes, each of them includes children of various grades; and the greater the number of classes, the more the class and the grade become identical.

Not including 184 practising schools with 19,582 children, there were in 1896 in Prussia 36,138 public elementary schools with 5,236,826 children, and 78,959 teachers actually employed.*

Of these, in 1896, 22,410 schools, with 1,477,558 children (in 1886, 23,125 schools with 1,718,076 children) were *taught by one teacher*; that is, in 1896, 62 per cent. of the schools and 28 per cent. of the children (in 1886, 68 per cent. of the schools and 35 per cent. of the children). The school taught by one teacher therefore fills a large place in the educational economy of Prussia, and a still larger place if we consider the country alone. Of the 31,896 country schools, 21,867, or 68 per cent., were in 1896 taught by one teacher, against 74 per cent. in 1886.

Such schools are, with few exceptions, either one-class or two-class schools (Halbtagsschulen).† The latter are defined as "schools of which one section is taught in the morning and the

* The number of posts is 79,431. There were 472 vacancies at that date.

† Schools in three classes under one teacher have decreased from 72 in 1886 to 39 in 1896. Wanderschulen (schools with no teacher of their own, but visited by the teacher of a neighbouring school on certain days in the week) and Laufschulen (schools which a neighbouring teacher visits in winter, the children going to him *en masse* in summer) are now reduced to the negligeable number of 18, against 98 in 1886. Wechselschulen (of which there are only three) are very curious. In two of them the teacher changes his residence from one village to the other every three years. In the third, an Evangelical replaces a Catholic teacher every eight years.

other in the afternoon."* But the pure Halbtagsschule, according to this definition, is seldom found in Prussia. The type is usually more or less modified: and, as may be seen from a comparison of pages 284 and 29 of *Preussische Statistik* there is some uncertainty about the number of such schools. But the figures show (1) that the total number of schools under one teacher is slowly decreasing; (2) that in many of the schools under one teacher the single class has been divided into two, so that the number of Halbtagsschulen under one teacher has increased. But the latter are not the only schools in which the number of classes exceeds the number of teachers. A Halbtagsschule may grow too large for one teacher and be reorganised into three classes under two teachers; and similarly four (or five) classes may be established under three (or four) teachers.

Although it is obvious that the difficulty of teaching a class is proportioned to the variety of grades included in it, yet the normal maximum of a "Klasse" is fixed at 80 for a one-class school, and at 70 for any other. If in a one-class school the numbers rise above 80, it may either be converted into a Halbtagsschule or be provided with a second teacher. When the numbers rise above 100 a second teacher must be appointed.

But even these very high limits are not by any means always observed. In the absence of a general law, the procedure in cases of defective supply is tedious and complicated, and the Minister often finds it difficult to compel compliance. Consequently, there still remain numerous "abnormal" classes (though their numbers have decreased), as the following figures show:—

(*a.*) General return of abnormal classes:

—	Classes.	Per Cent. of all Classes.	Scholars.	Per Cent. of all Scholars.
1896 ...	17,165	18	1,320,515	26
1886 ...	25,535	34	2,333,373	46

(*b.*) Number of one-class schools with abnormal attendance:

—	1896.	1886.
With 81—100 children ...	1,622	2,812
„ 101—150 „ ...	388	1,751
Over 150 „ ...	10	152
	2,020	4,715

(*c.*) Number of abnormal classes containing over 150 scholars in one-class schools, or over 120 in other schools:

1896 ... ... 72, with 10,242 children.
1886 ... ... 590, with 84,503 „

* *Preussische Statistik* (1898), p. 279.

(*d.*) And in 1896 there were four one-class schools with over 170 children in each, and one four-class school with 808 children, or 202 to a class.

These returns, while they indicate a state of things which is far from satisfactory, and which would not be possible in England, point to very rapid improvement in the decade. Certain areas are still exceedingly backward. In the Regierungsbezirk Münster the proportion of abnormal classes was—

——	1896.	1886.
Towns	67 per cent.	89 per cent.
Country	51 ,,	83 ,,

Of the country classes in the Regierungsbezirk Düsseldorf, 56 per cent. were abnormal in 1896, (in 1886, 73); in Oppeln 51 per cent. in 1896, (in 1886, 71).

VII.—Interior Organisation of Schools.

Elementary schools in Prussia are divided into three Stufen or steps; in the lowest (Unterstufe) the child is prepared to receive instruction, in the next (Mittelstufe) he is grounded in the various subjects, and in the highest (Oberstufe) he is enabled to extend and apply his knowledge. According to the official theory he spends two years in the Unterstufe, three or four years in the Mittelstufe, and three or two in the Oberstufe. But the practice varies. The Unterstufe sometimes covers the first three years; or again, the Oberstufe the four last. The division is important, because the hours of work and the subjects taken are prescribed according to Stufen and not according to years. Within the Stufen there may, of course, be graded sections for particular subjects. But the key of the whole position in the smaller schools is the practice of grouping many different years for instruction; the syllabus is made very simple, and the hours are shortened for the younger children.

The subjects taken in elementary schools are—

Religion.
German (Speaking, Reading, Writing).
Arithmetic and the Elements of Geometry.
Drawing.
Realien { History.
Geography.
Naturkunde (Natural History and Elementary Science).
Drill or Gymnastics (boys only).
Needlework (girls).
Singing.

In large schools of six classes a Modern Language, Mathematics, Shorthand, Domestic Economy, or Book-keeping may,

with the permission of the authority, be taught. The time for these subjects may be found out of ordinary school hours, and presumably no curtailment of the hours assigned to the regular work is permitted.

The Allgemeine Bestimmungen prescribe the following division of hours:—

(*a.*) Einklassige Schule:

—	Unterstufe.	Mittelstufe.	Oberstufe.
Religion	4	5	5
German	11	10	8
Arithmetic and Geometry	4	4	5
Drawing	–	1	2
Realien	–	6	6
Singing	1	2	2
Drill (Boys) or Needlework (Girls)	–	2	2
	20	30	30

(*b.*) Schools of more than one class:

—	Unterstufe.	Mittelstufe.	Oberstufe.
Religion	4	4	4
German	11	8	8
Arithmetic	4	4	4
Geometry	–	–	2
Drawing	–	2	2
Realien	–	6	6 or 8
Singing	1	2	2
Drill (Boys) or Needlework (Girls)	2	2	2
	22	28	30 or 32

(Needlework is not begun until the Mittelstufe.)

It is provided, however, that when one teacher has two classes (Halbtagsschule), or two teachers three classes, the necessary modifications may be made. The only universal rule with regard to the Halbtagsschule is that 32 hours' instruction altogether must be given in the week.

In many, but not in all parts of Prussia, quite different time-tables are followed in the summer and winter half-years. Where this is so, the usual summer arrangement (in force, as a rule, from April 1 to October 1) is to dispense with afternoon school, and complete each day's work between 7 a.m. and 12, sometimes between 6 a.m. and 11 or 11.30. In order to avoid strain upon the children, the hours are shortened. The Einklassige Schule

is taught in sections like the Halbtagsschule, and the Halbtagsschule works on its ordinary principle with a programme that can be got through in the morning hours.

The following are time-tables actually used in different types of schools. It should be stated that some Regierungen prescribe the time-tables of the smaller schools, but allow deviations with the approval of the Kreisschulinspektor. In others the teachers construct their own time-tables, under the above limitation of hours for each subject, for the Kreisschulinspektor's approval. Time for recreation, though not shown, is regularly allowed. Home work, it should be remembered, is set to all children except the very youngest in all elementary schools, and is cheerfully done. It is, with much reason, thought that the habit of doing a little daily independent work out of school is well worth cultivating. Our own evening schools no doubt suffer because the scholars, accustomed as they are to work inside the school only, cannot be induced to supplement their short hours of instruction by a little private study.

A.—EINCLASSIGE SCHULE.

I.—Prescribed Time Table (Coblenz Regierung).

(Morning and Afternoon School all the year round.)

Morning.

Hour.	Stufe.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1st	U.	Religion and Writing	Religion and Writing	Object Lesson and Writing	Religion and Writing	Religion and Writing	Reading and Writing
	M. O.	Religion	Religion	Essay	Religion	Religion	Religion
2nd	U M. O.	Arithmetic	Arithmetic	Reading Composition	Arithmetic	Arithmetic	Singing Written Arithmetic Geometry
3rd	M O.	Geography	Reading	Naturkunde	Geography	Grammar	Naturkunde

Afternoon.

1st	U. M O.	Writing Reading	Reading Hand-writing	— —	Writing Reading	Reading Hand-writing	— —
2nd	U. M. O.	Reading Written exercises Drawing	Writing History	— —	Reading Drawing	Writing History	— —
3rd	M. O.	Singing	Drill and Needlework	—	Singing	Drill and Needlework	—

U. = Unterstufe. M. = Mittelstufe. O. Oberstufe.
Unterstufe, 20 hours. Mittelstufe, 30 hours. Oberstufe, 30 hours.

II.—Time Tables approved by Inspector (Potsdam Regierung).

(Morning and Afternoon School in Winter. Morning only in Summer.)

(*a.*) Winter Half-year.

Hour	Stufe	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8—9	U. M. O.	Religion	Reading and Writing Religion	Religion	Religion	Reading and Writing Religion	Religion
9—10	U. M. O.	Arithmetic	Arithmetic	Reading Grammar	Arithmetic	Arithmetic	Writing Dictation Geometry
10—11	U. M. O.	Reading Reading	Object Lesson Reading Writing	Object Lesson Writing Reading	Reading and Writing Reading	Object Lesson Geography	Object Lesson Writing Drawing
11—12	M. O.	Geography	Natural History	—	Essay or Dictation	Elementary Science	—
1.30—2.30	U. M. O.	— Needlework (Girls)	Singing	—	Object Lesson Reading	Reading	—
2.30—3.30	M. O.	Needlework (Girls)	History	—	History	Singing	—

Unterstufe, 20 hours. Mittelstufe, 30 hours. Oberstufe, 30 hours.

(*b.*) Summer Half-year.

Hour.	Stufe.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7—8	M. O.	Religion	Reading	Reading	Religion	Grammar	Religion
8—9	M. O.	Arithmetic	Geography	Arithmetic	Arithmetic	History	Natural History
9—10	U. M. O.	— Dictation Essay	Reading and Writing 20′ German 30′ Reading Singing	Singing	— Drill and Needlework	Reading and Writing 20′ German 20′ Reading	Reading and Writing Drawing
10—10.40	U.	Religion	Religion 20′	Religion 20′	Reading	Religion	Religion 20
10.40—11.20	U.	Arithmetic	Arithmetic	Object Lesson 20′	Arithmetic	Arithmetic	Reading 20′
11.20—12	U.	Reading	Reading	—	Object Lesson	Reading	—

Unterstufe, 14 hours. Mittelstufe, 18 hours. Oberstufe, 18 hours.

B.—HALBTAGSSCHULE.

Prescribed Time Table (Coblenz Regierung).

(Morning and Afternoon School all the year round.)

Morning.

Hour	Stufe.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1st	M. & O.	Religion	Geography	Religion	History	Religion	Natur kunde
2nd	M. & O.	Arithmetic	Arithmetic	Drawing	Arithmetic	Drawing and Geometry	Singing
3rd	M. & O. U.	Essay —	Reading and Grammar —	— Religion and Singing	Reading and Composition —	Reading —	— Religion and Singing
4th	M. & O. U.	Hand-writing —	Drill and Needlework —	— German	Hand-writing —	Drill and Needlework —	— German

Afternoon.

1st	U.	Religion and Arithmetic	Arithmetic	—	Religion and Arithmetic	German	—
2nd	U.	German	German	—	German	German	—

Unterstufe, 12 hours. Mittelstufe, 20 hours. Oberstufe, 20 hours.

In the winter half-year the Unterstufe attends in the third and fourth hours of the morning, the Mittelstufe and Oberstufe returning in the afternoon; so that the school is not for this period a pure Halbtagsschule. The three Stufen are never all present at once under this arrangement, and the Mittelstufe and Oberstufe always attend together. But this is not always so. In a Halbtagsschule of 121 children which I saw, the Mittelstufe is sometimes present with the Oberstufe, sometimes with the Unterstufe, and consequently receives more hours of instruction than either. In this case the Winter Time-table assigns to the Unterstufe 14 hours, to the Mittelstufe 30 hours, to the Oberstufe 21 hours. Similar modifications of the general rule occur when there are three classes under two teachers. In the Coblenz Regierung the apportionment of hours in that case is—Unterstufe, 12 hours; Mittelstufe, 26 or 24 hours; Oberstufe, 26 or 28 hours.

There is thus great elasticity as regards hours of work, and much accommodation of the school to outward circumstances. The

free afternoon in summer which so widely prevails is a largess to the parents, who utilise their children's labour only too freely.* But the Halbtagsschule, and the three-class school with two teachers, as well as the one-class school when the numbers are large, can only be regarded as makeshifts, the creation of exigencies not yet extinct. All these types are more or less defective. The one-class school keeps full hours, at any rate in summer, but the teacher cannot do justice to all the children. In the others, time is lost, even if the classes are brought within proper limits of size. More effective work, say the theorists, compensates for shortened hours. But at the best the defect is only shifted, not removed. And the remedy becomes fictitious when the normal limit of the class is approached or exceeded. For a Halbtagsschule, or a three-class school with two teachers, is still regarded as *normal* if there are 70 children to a class. And *abnormal* classes are not uncommon; there are 808 abnormal classes in Halbtagsschulen, and 1,099 such classes in three-class schools under two teachers. In such cases the three evils of shortened time, overburdened teachers, and over-large classes exist together.

VIII.—Aim of the Elementary School. Treatment of the Subjects of Instruction.

The true purpose of every school, to fit the child for the duties of the man, is nowhere more clearly enunciated than in German official and unofficial dicta on the Volksschule and its aim. This aim is, in the language of the latest definition,† "the religious, moral, and patriotic training of the young, and their preparation in the knowledge and acquirements necessary for the life of the citizen." First, religion and conduct, then social and political right-mindedness, then knowledge; and knowledge is to follow the path of practical usefulness. Special importance is attached to religious instruction; but "allgemeine Menschenbildung," the training of the whole man, is the object to be kept in view. No subject of instruction is an end in itself, but each is a means towards the greater end. "I regard moral uprightness," says a German teacher,‡ "as the cardinal point in the whole personal worth of a man." But moral teaching is not to rest upon religious instruction alone.

In other subjects also the German teacher, who has been taught to read sermons in stones, brings the ethical lesson to the front without artifice or effort. In Geography and in History the child is made to understand his home neighbourhood first, then his country; who its rulers and statesmen are, and what they have been in the past; how the State has by gradual steps evolved its greatness; the meaning of the German empire; the duties of the individual to the Gemeinde, and to the larger units of Government. In the Reading-books which he studies, and not

* In some towns, including Berlin, there is never afternoon school.
† Dr. Falk, 1877. Gesetzentwurf 1891, § 1.
‡ H. Keferstein. *Volksbildung und Volksschule*, Leipzig, 1896.

merely reads, he finds all the materials for the foundation of these ideas. In Natural History and Elementary Science he learns reverence for the works of Nature. In the respect shown to the Mother-tongue there is some element of patriotism.

Again, the unity of all knowledge is kept in view. German is not set up into disparate heads—Reading, Composition, Spelling, Recitation, and Grammar,—but treated as *one* study, the main end of which is clearness of ideas and their correct and fluent expression in language, to be practised and turned to use in all other studies. History, whether sacred or profane, is always History, in which the child may learn to see the hand of Providence at work, to admire what is noble, and despise what is base. And with it in close interdependence is linked Geography. "History is written on the wind," says Schleiermacher, "unless Geography is made its basis." The expansion of Head and Heart is the common aim, and Interest the common instrument, of all intellectual work.

It follows that a limited curriculum is sufficient. It is wrong to set high value upon the accumulation of knowledge, at the expense of ethical and intellectual thoroughness. Much detail in Geography and History, a large amount of reading matter, a free range of subjects, are not in themselves important. Teachers capable of thorough ethical and intellectual treatment of their work are the first necessity, men who know how to free themselves from all that is petty, and yet see that every detail needs care; then a choice of work that can really be done, and which forms a harmonious whole.

The practice of 'Wiederholung,' going again in summary over the ground of each lesson at the beginning of the next, is universal in German teaching, at the Training Colleges as well as in the schools,—a practice far too little prevalent in England. And the German teacher sees no harm, but rather good, in that repetition of work on a wider scale, which the almost unlimited grouping of different years involves. But it is difficult not to think that too much is often sacrificed in this way to real or supposed necessity.

It is to be remembered, in considering the treatment of the chief subjects of secular instruction, that nothing in the nature of payment by results has ever existed in Germany. There is no exemption standard, and extremely little premature withdrawal. Children must stay at school till a fixed age, and work may go steadily on without pressure or haste.

(1) *German.*

When the children first come to school they are about six years old. They learn four things only—Religion, German, Arithmetic, and Singing—so long as they remain in the Unterstufe—*i.e.*, for two or sometimes three years. German is limited to Anschauungsunterricht, and Reading and Writing. Anschauungsunterricht corresponds roughly to the object lessons of an English school, but the name is applied to the work of the Unterstufe

only. Its purpose is (1) to give the children right ideas about the things around them, beginning with the most familiar; (2) to awaken in them interest, attention, observation; (3) to teach them to clothe their ideas in right language. Though it forms an introduction to Realien, it is a German lesson as much as anything else, and in the course of it small poems bearing on the subject matter are frequently learnt. The following is a list of lessons drawn up for a two years' course. It will be noticed that the arrangement follows the course of the seasons as far as possible.

EASTER TO THE HARVEST HOLIDAYS.

First Year.	*Second Year.*
1. The Schoolroom and its Furniture.	1. Same subject.
2. Materials used in the school.	2. Spring.
3. The Dwelling-house.	3. Marsh-marigold.
4. The Sitting-room.	4. The Blind Nettle.
5. The Kitchen.	5. The Cuckoo.
6. Cellar and Rooms.	6. Cockchafer.
7. The Cat.	7. Boy and Bird's-nest.
8. The Mouse.	8. Housebuilding.
9. Farm Buildings.	9. Wayfarer and Lark.
10. The Stork.	10. The Summer.
11. The Farmyard.	11. The Harvest.

HARVEST HOLIDAYS TO MICHAELMAS.

First Year.	*Second Year*
12. Pug and Spitz.	12. The Corn Flower.
13. The Garden.	13. Gardening.
14. The Arbour.	14. The Butterfly.
15. Fruit Trees.	15. The Swallow.
16. Flowers.	16. Birds and Owl.
17. Vegetables.	17. The Frog.
18. The Village.	18. Fishes.
19. The Peasant.	19. Bees.

MICHAELMAS TO CHRISTMAS.

20. Mare and Foal.	20. Harvest.
21. The Goat.	21. The Fruit Harvest.
22. The Cow.	22. Shepherd and Flock.
23. The Sheep.	23. Dog and Goat.
24. Chickens.	24. Dog and Children.
25. Doves.	25. The Potato Harvest.
26. Ducks and Geese.	26. Vineyard.
27. The Swan.	27. The Peasant and the Tilling of the Land.
28. Church and Tower.	28. Fox and Duck.
29. River, Bridges, and Ships.	29. The Donkey.
30. The Mill.	30. Winter.
31. Water and Fishing.	31. The Fir Tree and Christmas.

CHRISTMAS TO EASTER.

32. The Raven.	32. The Goat.
33. The Forest.	33. Hare and Sportsman.
34. The Wild Animals of the Forest.	34. The Woodpecker.
35. Forest Trees.	35. The Wood-cutter and the Uses of Wood.
36. The Town.	36. The Squirrel.
37. The Yearly Market.	37. Snow and Ice.
38. Various Artisans.	38. Sliding and Skating.
39. The Bear.	39. The Snow Man.
40. The Elephant.	40. Horse and Sparrow.
41. The Lion.	41. Child and Ox.
42. Threshing.	42. The Railway.

In many schools, however, the same list of lessons is repeated year after year. The Allgemeine Bestimmungen nowhere prescribe a separate course of Anschauungsunterricht, and in many schools the Reading Lesson and Object Lesson of the youngest children are combined. Reading is taught, in the first year, either on the Normal-Wörter or on the Schreib-Lese method, or on a mixed method thought to combine the advantages of both. In any case it is taught together with Writing, and a little practice in making strokes in various directions on slates precedes the first attempts. The Normal-Wörter method proceeds from a discussion with the children of an object, the written symbol for which is afterwards placed on the blackboard and copied by the children. The order in which the objects are taken depends upon the suitability of their names for instruction in writing, and for dissection into sounds; and it is, therefore, by no means a good order for Object Lessons; but yet these discussions take the place to a great extent of Anschauungsunterricht when this method is used. In the words chosen each vowel and consonant has its full normal value, and each new word presents a new sound. Thus the first word is Ei (egg). An egg is exhibited and talked about at length. The word is written, in small letters only, and the children copy it. They are not told the names of the letters, and in fact do not generally learn them in their first year at all. The next word is "Eis." The teacher dwells on the "s" sound and asks the children what new sound they hear. So with "Seil," the next in order, which gives the new sound and symbol "l." Then "Maus" follows with the two new sounds "M" and "au," and so on, till all the sounds are mastered. The method is first analytical and then synthetical, and hence its name of "Analytisch-Synthetisch."

The Schreib-Lese method in its pure form discards the accompanying Object Lesson and the analysis of the word into its sounds. It is purely synthetic. Its advocates claim for it that it is easier and quicker, and that it has no tendency, like the Normal-Wörter method, to lead to spelling. Words are chosen in which the initial sound is prominent, and the vowels and diphthongs are learnt first. "Igel" gives "I," "Esel" "E," "Ei" the combination of "E" and "I." "Uhr" gives "U," "Eule" "E" and "U"; "Ofen," "O"; "Aal," "A," and so on. In all cases, only the one initial sound is attended to, and the symbol of it only is written. But each word is illustrated by a picture.

The combined methods are various. Some begin on the Schreib-Lese principle and continue with that of the Normal-Wörter. Some introduce the capital letters and the printed symbol with the written symbol from the first. But the principle of teaching by sounds only, and the rejection of spelling (which is expressly forbidden by the Code) is common to all these methods alike. There is, obviously, very great advantage in teaching Reading through Writing, and Writing through Reading, and in placing reliance on sounds instead of on letters: but the plan is far more easily applicable to German than to

English. Still a partial adaptation of this method to our language seems both possible and desirable. It is not necessary that the youngest infants should learn the names of the letters or the printed symbol, and it would certainly be well to simplify their instruction by the combination and unification of subjects as far as possible.

The amount of reading matter covered in the first year is always small, sometimes very small. I have found it as little as sixteen octavo pages of Primer (this was in a good school), or as much as 100. In the second year, either the Primer may be finished, or a new book may be read, so that in the first two years from 100 to 200 pages are got through. Transcription and reproduction of short sentences on slates are very extensively practised.

At the beginning of the third year, when about eight years of age, the child as a rule enters the Mittelstufe and takes up new subjects—Geography, History, Naturkunde, Drawing, Needlework. German now includes Reading, Writing, Dictation, easy Composition, and Grammar. Where there are two teachers, the third year children may have a separate reading book, but it is invariably the case, when there is only one, that the Mittelstufe and the Oberstufe read together in one book of about 500 pages; *and this book lasts the child six years.* But the German conception of the Book and its use differs widely from the English conception. "The reading book," say the Allgemeine Bestimmungen, "is the foundation of all instruction in German." It is to be so treated that its whole content may if possible be gradually mastered. It is to be used not merely for the purpose of teaching to read, but also as a means towards intelligent appreciation of the masterpieces which it contains." Thus the Book is the central subject of study round which other studies are grouped. No new book, or materially altered edition of an old book, may be introduced without the consent of the Ministerium itself. The reasons for this rule are principally educational, but partly also financial, for the children pay for their own books, and the poverty of the German home has to be regarded. I have been told many times that this latter consideration has something to do with the use of one book for so many years; but yet the greatly preponderant opinion is that no educational harm results. Teachers in general may perhaps be expected to defend a practice in which they have grown up, but it is one to which even the reformers who urge other changes appear to take no exception.

How then does it work out in actual teaching? The reading book contains stories and passages with a religious or moral tendency, pictures of German life, historical and geographical sketches; and it is divided into a shorter part of 120 or 130 pages for the Mittelstufe and a longer part (the remainder of the book) for the Oberstufe. It is well illustrated, and very carefully compiled, quite free from mawkishness and loose writing; the great majority of the pieces are taken from good authors; and

though the contents are solid, they are interesting and not too difficult.

Reading is either 'kursorisch,' *i.e.*, the rapid reading of a passage as practised in England; or 'statarisch,' the close and minute study of a passage from every point of view. Much more time is given to the latter than to the former. It is expected that 20 to 30 sections will be studied closely in the year, and 30 to 45 read rapidly. A short passage of half an octavo page suffices for three hours' study. It is first read by the teacher; then he discusses it, draws attention to its moral teaching, or any other special features; then it is read by the children in short pieces, and afterwards in longer pieces; reproduced and expounded by them orally, used for dictation and for writing from memory; or, if it is a poem, learnt by heart. The more rapid reading is resorted to chiefly for making fast the lessons in History and Geography and Naturkunde, after they have been given.

The sections of the book are not taken in order as they come, but are supposed to be so divided as to form a two-years' course. It is obvious that since children remain three years in each Stufe, they must in any case study some of the same passages twice over; and as the two Stufen take reading together, it constantly happens that the Mittelstufe merely listens while the Oberstufe reads, or *vice versâ*; or the Oberstufe reads the old matter over again with the Mittelstufe, so that time is wasted. But the close study of a certain amount of reading matter, given suitable pieces and a teacher who knows the way, teaches children to think and express themselves, and leaves behind it an impression of literary style. For evening schools it would be far more profitable, under capable guidance, than the prevalent practice of skimming a quantity of light matter. So much importance is attached to it in Germany, that teachers regard the careful preparation of the reading lesson as of the first importance. A young teacher expects to give two or three hours a day to preparation, an older teacher less. But however ample his stock-in-trade of lessons, he will not omit to prepare himself for next day's instruction in Reading and Religion. In England Reading is probably the one subject which is thought to need no preparation at all.

It might be suspected that under such a system little power of reading at sight would be acquired. But this is not so. Wherever I have tried classes in unseen pieces I have found the average result at least as good as it would be in England.

Another book is sometimes, but not by any means always, in the children's possession. This is the Realien Book, containing courses of History, Geography, and Naturkunde systematically treated: but it is used not for instruction in Reading, but for the study of these subjects independently at home or at school.

(2) *Realien.*

The amount of History, Geography, and Naturkunde expected of a small school is not large. These subjects are first attempted when the child enters the Mittelstufe. Their purpose is under-

stood to be primarily training rather than knowledge. Facts matter much less than moral impressions. It is not intended to produce "geistige Leichen," mere intellectual corpses. The problem of organisation is solved by wide grouping, and the method is that of concentric circles, which starts from the point nearest to the child's mind, and gradually widens the area of study; while in allied subjects, such as History and Geography, a parallel expansion is maintained, so that the one subject always bears upon the other.

History is in a special sense the vehicle of instruction in Social Ethics. A remarkable Cabinet Order of May 1, 1889, commands that this subject shall be used in the schools to stem the tide of social democratic ideas. "I cannot ignore the fact," says the Emperor, "that at a time when the errors and false doctrines of Social Democracy are being disseminated with increasing zeal, it is the business of the school to make greater efforts to further the recognition of what is true, what is real, and what is possible in the world. It must exert itself to bring home the conviction to the young that the teachings of Social Democracy are not only at variance with Divine commands and Christian morality, but are truly impracticable, and ruinous in their consequences to the individual and the community alike." The document further sets forth that the benefits which the Kings of Prussia have conferred on the working man, and the security which the people enjoy under a settled Monarchical Government, should be impressed upon the children; that the teaching of History must be brought down to the most recent date; that it must in the Volksschule be of the simplest character, and that the task of amplification must be left to schools of a higher grade.

Ministerial orders followed with detailed instructions in accordance with this command, directing *inter alia* that History must be begun in the Mittelstufe in schools, and that special stress should be laid upon the subject in Training Colleges, and in the second examination for teachers.

From the point of view of the German teacher, there is less harm in the grouping of many different years for instruction in Realien, and in the partial or complete repetition of work by the same children, than there must seem to be if the acquisition of knowledge is the principal aim; and the necessity for the adaptation of the work to the staff is always much considered. Accordingly, if there is only one teacher, the Mittelstufe and Oberstufe (comprising six years) are taught together, the latter sometimes, but not always, being taken into more detail than the former; sometimes the teaching is addressed to the Oberstufe, and the Unterstufe merely listen. The teacher knows that the work will come round again, and is satisfied if he gives the younger children a general impression for the moment. Listening and independent employments, *i.e.*, writing tables, or words, or copies, occupy a great part of the younger children's time in a small German school, and in no department of work more than in religious instruction, which is frequently given to the whole

of the scholars at one time. But it is clear, that as History and Geography are arranged in two-year courses, each course must be repeated three times. And here is still much repetition when there are two teachers, and the two Stufen take separate work. We may admit that there is excess in this direction, but we may yet question whether the English practice of concentrating effort on facts rather than on principle, and treating each year's work as if it yielded nothing worth remembering in the next, is not open to equally grave objection.

The following is in outline the Geography scheme used both in large and in small schools in the Coblenz Regierung. The large schools take more detail; but where there is only one teacher the two Stufen are taught together, and it will be noticed that the work of the higher stage covers that of the lower so as to make this possible. In this way a child goes through much of the matter no less than six times over.

The character of the teaching itself is usually interesting and effective. Based upon physical facts and eschewing mere nomenclature, it relies greatly on picturesque characterisation, and full delineation of a few salient points, with frequent reference to History, and much use of sketch maps. In some neighbourhoods afternoon excursions are regularly undertaken for the illustration of Geography and Natural History.

*Geography Course prescribed for Coblenz Regierung.**

First Year.

MITTELSTUFE.	OBERSTUFE.
Surroundings of the school; streets, lanes, buildings, etc.; their position by the compass.	The story of school, church, and village.
Surroundings of the place in the same way.	Information about places within view; their distance from the village.
In the schoolroom; position of walls, windows, door, church, hills, etc., by the compass.	
Sketch map of village and surroundings: introduction to map.	
Authorities of the Bürgermeisterei; villages, mountains and roads contained in it; sketch map.	The Bürgermeisterei and Bürgermeister; other authorities; products, high roads, post, telegraph, etc.
The Kreis in the same way; sketch map.	From this point onwards, same as Mittelstufe, with the addition of more detail.
Rhine, Moselle, Saar. Towns on the hills and on these rivers.	
Various other rivers and towns.	
Regierungsbezirk Coblenz.	
Rhine Province.	
Broad physical features of Germany.	

* This course is, as in other Regierungen, adapted to the locality.

Second Year.

MITTELSTUFE.	OBERSTUFE.
The Heimat as in first year.	
Germany (political outline).	Same general headings, with more detail.
Prussia.	
Other German Kingdoms.	
General outline of other European Countries.	
General outline of the Oceans and the World.	
The Earth a Sphere. Poles, Equator, Zones, Sun, Moon.	Mathematical Geography simply treated.

Other courses which might be given exhibit variations in form rather than in substance; and History often follows similar lines. The following scheme is taken from a school with two teachers, each in charge of one class with forty children, and therefore favourably circumstanced.

History Scheme (approved for a School in the Potsdam Regierung.)

I.—MITTELSTUFE.

First Year.

SUMMER.

1. Names of Prussian Rulers and their Children.
2. Important Events in the Life of the Emperor and Empress.
3. Other Members of the Royal House.
4. Life of Frederick III.
5. Recapitulation.

Second Year.

SUMMER.

Work of First Year recapitulated

First Year.

WINTER.

6. William I. (youth).
7. Do. (as King).
8. Do. (as Kaiser).
9. Kaiserin Augusta.
10. Bismarck and Moltke.
11. Life of Frederick William IV.
12. Recapitulation.

Second Year.

WINTER.

1. Frederick William III. and Louisa.
2. The troublous Napoleonic years.
3. Heaven's vengeance in Russia.
4. The call to arms by the King in the cause of Freedom.
5. Blucher's victory at the Katzbach.
6. Battle of Leipzig.
7. Stories of the War of Freedom.
8. Stories from the life of Frederick William III.
9. Recapitulation.

II.—OBERSTUFE.

First Year.

SUMMER.

1. Frederick William Grosser Kurfürst).
2. Frederick I.
3 Frederick William I
4. Frederick II.

Second Year.

SUMMER.

1. Old German History.
2. Varus and Hermann.
3. Migration.
4. Charles the Great.
5. Henry V.
6. Otto the Great.
7 Henry IV. and Pope Gregory
8. The First Crusade.
9. Frederick Barbarossa.
10. Life in the Middle Ages.
11. Rudolph von Hapsburg.
12. Albrecht the Bear.

First Year.

WINTER.

5. Frederick II.—continued.
6. Frederick William II.
7. Frederick William III.
8. Frederick William IV.
9. William I.
10. Frederick III. and William II.

Second Year.

WINTER.

13 The Mark under the Bayer and Luxemburger.
14. Kurfürst Frederick I. of Brandenburg.
15. John Huss and the Hussites.
16. Inventions and Discoveries.
17. Luther and the Reformation.
18. Joachim I. and II.
19. The Thirty Years War.
20. Gustavus Adolphus in Germany.
21. Repetition of pictures of life to the present date, and summing up of the progress of Prussia.

A similar organisation is adopted in the two departments of Naturkunde,—Naturbeschreibung (Natural History) and Naturlehre (Elementary Science), which are usually taken alternately, in summer and winter respectively. Naturbeschreibung deals with the animal, vegetable, and mineral kingdoms generally, and with the physiology of Man; Naturlehre with the properties of bodies, Sound, Light, Heat, Electricity and Magnetism. The treatment does not profess the system of a scientific course, but consists of a series of Object Lessons, calculated to stimulate observation, interest, and admiration of Nature.

(3) *Arithmetic and Geometry.*

The German school-child is delivered from many troubles by the decimal system, which makes arithmetic comparatively simple, and it is not found difficult to add a little Geometry to the other work of the Oberstufe. Oral work takes a prominent place throughout, and the handling of problems or statement of processes by the children is often strikingly rapid and clear. Of course the superiority of the German child in all oral exposition greatly helps him here also. I have never observed any of those tricks—counting by threes, making strokes on slates, &c.—which examination purposes have popularised in England.

IX.—Proposals for Reform.

It has already been said that Prussia has no general Education Law. There are individual laws for school attendance, teachers' salaries and pensions, State supervision and State aid; separate provincial laws affecting school attendance, appointment of teachers, and other matters; and decisions of Courts of Law filling up lacunæ. But there is much diversity in these ordinances, and much depends upon ministerial orders, which may possibly change with the Minister.

The last attempt to pass an Education Law was made in 1891, and, like its many predecessors, failed. Its main purposes were to establish the provisions of the Allgemeine Bestimmungen on a legal instead of a ministerial basis, to regulate the support of the school, as well as attendance and penalties for non-attendance, on a uniform plan for the whole country, and to reorganise school districts. It left the subjects of instruction and the size of the normal class untouched; but it would have given to each locality a voice in the appointment of the teacher, and would have facilitated the extinction of abnormal classes.

Reformers are unanimous in demanding continuation schools with compulsory attendance, and better provision for the educational ladder, which does not at present exist for country children; they would gladly see the abnormal class abolished and the normal class reduced.

The over-employment of children out of school affords, as in England, a solid ground for complaint. "They have no holidays," said a German teacher to me; and it is apparently too true, in country districts at all events, that too much labour is imposed upon children by their parents.

Local self-government is often demanded, but without any precise definition of the powers which each locality would acquire, or any suggestion of safeguards against the chaotic result to which local self-government in the full sense would lead.

The better general culture of the teacher by means of the Real-Schule before, and the University after, the Training College course, is a need which has its counterpart in England; but if the German teachers require a broader education, the English teachers, taken as a body, require it still more. The German teacher has, at least, the Training College, which none of our assistants, and little over half of our certificated teachers, ever enter; and as regards his technical training, he has very much surer guidance. If it is deplored that Pädagogik is neglected by the German Universities, how much greater is the defect in England, where even in Training Colleges the science of Education has not in any full sense a sure hold.

There is substantially little clamour for changes of curriculum; and, indeed, the stability of the German syllabus, which has since 1872 remained practically unaltered, is for us one of its most noteworthy features. Still, there are suggestions for reform. Some, who rightly regard the function of the Elementary School as wholly propædeutic, would find room for manual occupations

by still greater simplification and fusion—not alteration—of the existing subjects, relegating all technical teaching to the Continuation School which they hope to see established. Others, less sanguine in this direction, take for their text what they call "practical aim," and advocate the substitution of Domestic Economy, Manual Work, Hygiene, the elements of simple Law, Book-keeping, &c., for merely formative instruction—a proposal which is very little likely to find acceptance.

X.—The Training of Teachers.

(*a.*) *Präparanden-Anstalten.*

A boy who intends to become a teacher is prepared for the Training College in the great majority of cases in a preparatory school (Präparanden-Anstalt); much more rarely, and only when his means are inadequate, under the private tuition of the local schoolmaster; the number thus prepared is steadily declining. For girls there are no preparatory schools; but candidates for women's colleges proceed to their admission examination direct from private schools of various descriptions.

The establishment of Präparanden-Anstalten was promoted by the State in 1872 in order to prevent the drifting away of boys into business employments; but it was thought undesirable that the Government should take the whole preparation of candidates into its own hands, because either the number of State institutions must be made very large, or else there would be a tendency to localise and otherwise limit the sources of supply. Hence private preparatory schools were encouraged, and these are in many cases affiliated with Training Colleges. More recently too, Municipalities have been prevailed upon to undertake work of this kind.

Thus there are three main classes of Präparanden-Anstalten.

(1.) Government Institutions purely (Staatlich). Of these there are 38. The State provides a building for teaching purposes, not as a rule a hostel, pays the salaries of the teachers, all costs of teaching apparatus and maintenance of premises, and besides this a subsidy of 90 marks (£4 10*s.*) a year for each student up to the number for which the institution is calculated, receiving a fee of 36 marks (£1 16*s.*) a year from each student. Thus at Wandersleben, near Erfurt, the cost to the State is as follows:—

	Marks.
Salaries of Teachers -	6,000
Rent - - -	600
Apparatus - -	400
Heating - -	300
Subsidy - -	5,400
	12,700
Deduct fees - -	2,160
	10,540 = £527.

For the roll of 60 students, this gives an average cost to the State of about £8 16*s.* per head. The subsidy is divided amongst the students, at the discretion of the Principal, and with the approval of the Provinzial-Schul-Kollegium, according to deserts. A needy student whose progress and conduct are satisfactory, might get 30 to 40 marks a quarter; and the weight attached to behaviour forms a powerful instrument of discipline.

The students live *en pension* in the village, in families to which they are assigned by the Principal. As a rule they have what is called half-pension—*i.e.*, bed, breakfast and a good mid-day meal, fire and light. Coming mostly from agricultural homes, they prefer to provide the rest of their food themselves from the larders of their parents

The ordinary cost of this half-pension, holiday time excluded, averages	270 marks
The other food may be counted at -	100 "
School fees - - - -	36 "
	406

To this must be added the cost of books, clothes, and journeys, and the varying amount of the subsidy must be deducted; so that, roughly, the average total cost to the student is 350 to 400 marks (£17 10*s.* to £20).

(2.) Municipal, nine in number. The municipality provides buildings for teaching purposes, and pays the teachers; the Government appoints the teachers, and contributes towards general expenses.

(3.) Private.

(*a.*) In connection with a Training College. There are no statistics of these schools, but about two-thirds of the colleges are said to be provided with them. Financially they are private ventures controlled by the College; educationally, they are governed by the Director of the College, who is *ex officio* Principal, and taught by a regular staff with the assistance of some of the College tutors, each of whom may give not more than four hours a week to this work. At Oranienburg the school is located in a hostel rented by two ladies, who board 80 of the students in the house; the remaining 36 live *en pension* outside at a rather larger cost. Besides his outlay on books and personal expenses, each boy pays for tuition 80 marks: for board and lodging in the hostel, 300 marks. The total cost is thus rather larger than in the State institutions. The College receives the fees and the lodging money of the boarders; the latter is handed over to the lessees, with a further sum equal to one-quarter of the rent.

The cost to the State is nothing, except 1,000 marks a year for the assistance of poor students.

(*b.*) Not in connection with a Training College. These are merely private schools carried on by a syndicate of clergymen or elementary teachers in spare hours. They are more expensive as regards fees, their hours of work depend upon the other engagements of the teachers, and they are liable to the usual difficulties of classification incidental to small schools.

There are always more applications for admission than there are vacancies in these institutions, although the authorised number of admissions is sometimes exceeded.

They were originally organised in two classes, *i.e.* for a two-year course, and the boys were admitted at fifteen. But experience has shown that to leave a gap between fourteen, the age of leaving the elementary school, and fifteen, the age of admission to the Anstalt, was a mistake. Conversion of the two-year into a three-year course (with admission at fourteen) has taken place at Oranienburg and several other places; while Wandersleben and others are about to be re-organised in the same way, and all the larger preparatory schools will gradually follow suit.

There is an admission examination conducted by the Principal and the staff, with which the Government authority does not interfere; informal tests of progress are held during the course, and unpromising scholars are not long retained; the Leaving Examination is held, if the school is a public institution, at the school itself, under the supervision of the Provinzial-Schulrat; or if it is not, the Admission Examination, similarly conducted by the Training College which the candidates wish to enter, takes its place. Those who pass are admitted into a College; those who fail may either retire, or with permission pursue their studies in the school for another year, and make one more attempt.

The syllabus of work, from which all pædagogic matter is expressly excluded, must be approved by the Provinzial-Schul-Kollegium.* It is mainly regulated by the prescribed scope of the admission examination of the College, or its equivalent the Leaving Examination of the school, which includes only the subjects taught in the elementary schools, with the addition of Harmony and instrumental music. A modern language may be taught, but it is not a subject for examination.

The curriculum is much less limited than might be supposed, because the treatment is broad, and the subjects of the elementary school may be so expanded as to cover wide ground. The official instructions deprecate contraction of aim to the target of examination; and the examination itself is not of a character to encourage narrowness. Half a day of written work comes first;

* Or, in the case of purely private institutions, by the Regierung.

then a day and a half of oral questioning in as many groups as there are College Tutors; and in doubtful cases an oral re-examination before the whole staff.

That these boys have to work hard there can be no doubt. They have 30 to 35 hours in class every week, besides 18 hours, preparation out of school, and the practice of musical instruments; and these hours of preparation are no pretence. The teachers, at any rate in some of the institutions, go round to the houses where the boys are domiciled, and see that the hours are strictly kept. I was impressed by the excellence of the lessons, by the admirable outward discipline and demeanour of the students, and especially by the grim earnest in which they seemed to work, and their full and eager answering in class. Here, as in the elementary schools and Training Colleges, the oral answer is the keystone of the whole edifice; here the knack of expression caught in the elementary school is developed, to be brought to full ripeness in the Training College later on. The schools seem to be numerically and otherwise thoroughly well staffed. At Oranienburg, for 116 scholars, there is a fixed staff of three, and five College tutors teach three or four hours a week each. At Wandersleben, with 60 students, a Principal, who takes 19 hours of class teaching per week, and two teachers, who take 26 and 27 hours respectively, divide the work amongst them.

But there is play as well as work. I saw some very vigorous gymnastics under the guidance of a tutor at Oranienburg in a well-fitted Turn-Halle; football is regularly played in winter; and in summer various other games, and walks, are systematically organised.

The following is the Time-table for the Wandersleben School (where at present only two years are maintained):—

TIME-TABLE OF THE WANDERSLEBEN PRÄPARANDEN-ANSTALT.

Hours.	Class.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday
7—8	1 2	Arithmetic Bible History	Bible History Arithmetic	Arithmetic Catechism	Catechism Geography	Natural History Catechism	Church Music Physics
8—9	1 2	Catechism Geometry	Grammar Oral Discussion	Oral Discussion Arithmetic	Geometry Bible History	Bible History Arithmetic	Oral Discussion do.
9—10	1 2	Geography Church Music	French Piano	Natural History French	Grammar Natural History	Physics French	Essay Geography
10—11	1 2	History Natural History	Physics Writing	Harmony Grammar	Geography Geometry	French Piano	Arithmetic Harmony
11—12	1 2	Piano Essay	Drawing do.	Organ History	Piano Writing	Drawing Grammar	Piano History
2—3	1 2	Violin	Geometry —	— —	Violin	History —	— —
3—4	1 2	Violin	History —	— —	Violin	Writing —	— —
4—5	1 2	Singing	—	—	Singing	—	—

(*b.*) *Training Colleges.*

After quitting the Präparanden-Anstalt, the candidate passes into the Training College for a three years' course, till the end of which there are no examinations, except periodical tests of progress by the College. In the first year the student studies the History and Science of teaching, but does not practise: in the second he teaches a little—at Oranienburg one hour a month for nine months, and in the last three months rather more than this, with a good deal of "hospitieren," *i.e.*, standing by and observing, in the Practising School; in the third year he teaches 6 to 8 hours a week. He takes certain subjects continuously for ten weeks, and then changes to others; so that in the year he gets practice in all. Thus in Prussia (it is not so in Saxony) the Practising Schools are practically taught by the third-year students, but the tutors, who of course give model lessons, exercise a constant and close supervision.

The first public examination (Entlassungsprüfung) comes at the end of the third year, not at any fixed time of year for all Colleges, but at dates varying with the month of admission, which is purposely diversified in order that the supply of teachers may be constant. The examination is conducted, under the eye of Commissioners from the Provinzial-Schul-Kollegium and the Regierung in which the College is situated, by the staff of the College. The Inspectors of the Regierung may if they wish be present.

It consists of tests on paper lasting two or three days, and five or ten minutes' oral examination of each student in all subjects. Those who pass—and there are very few failures, because of the weeding process that goes on in the Präparanden-Anstalt and even in the Colleges—receive a certificate of their attainments in each subject, and of conduct. They are then appointed to the provisional charge of a school or class, and they are bound to accept any post to which the provincial authority assigns them. Every student on entering the College binds himself under pecuniary penalties neither to leave the College of his own free will before the end of his course, except on account of illness, nor to refuse any post which may be given him during the first five years after his first examination. The provisional appointment (which may be recalled) lasts until he passes, in not less than two or more than five years, a *second examination* which in the main does not test knowledge, but aims at discovering whether the candidate has acquired skill in practical work, and a mastery of educational principle, and whether he has made use of the interval to improve his general culture. Certificates of his success in school-work are required. But he may, if the examiners think fit, or if he himself wishes to improve his marks, be tested in the subjects of the first examination.

For this second examination teachers present themselves at a

College in the Regierung in which they are serving. In the ordinary course, it consists of—

(*a.*) Written Work.—Essays (i,) on some subject of school management.
„ (ii.) on some religious subject.
„ (iii.) on some other subject of instruction.

(*b.*) Practical Work.—A lesson on a subject named the day before.

(*c.*) Oral examination in the History, Practice, and Theory of Teaching.

Special success in the two examinations qualifies for the instruction of the lower classes in Mittelschulen and höhere Töchterschulen. But a further examination (Mittelschulprüfung) is necessary, if the Teacher wishes to qualify for the higher classes in these schools; and he is not eligible for the post of Rector —*i.e.*, Headmaster of a school with six or more classes—or of Tutor in a Training College, unless he passes both the Mittelschulprüfung and another examination beyond it (Rectoratsprüfung).

The staff of the Training College consists of the Director and the Oberlehrer, who have usually received a University education, and a number of tutors qualified as just described. At Oranienburg, for 95 students, there are seven tutors, but it must be remembered that on them devolves the whole supervision of the Practising School, and that five of them take part in the instruction of the Präparanden. The Practising Schools are supposed by the official rules to include a one-class school and another school of several classes; but this is not always the case. At Oranienburg, for instance, there is only one school, in six classes. These schools do not come under inspection, and are not included under the category of Public Elementary Schools, though they serve the same purpose.

The cost of the Training College to the student varies according as he is or is not boarded in the College. The State pays for lodging, light, fire, apparatus, and use of musical instruments; gives a subsidy of 90 marks for each student in College, which is distributed, as in the Preparatory Schools, by the Director with the approval of the provincial authority, according to deserts—*i.e.*, behaviour and need of assistance; while the in-college student pays at Oranienburg about £6 a year for the greater part of his food (bread is not included), and has also to provide himself with books and other materials. About £10 a year probably represents the total expense.

The non-resident students, who number not far short of half of the whole number, have to pay much more heavily for keep, unless they live at home; and their total expenses probably average £25 to £30 a year. There are no tuition fees in either case.

In 1896 there were 11,034 students, of whom 5,997 lived in College, and 5,037 outside. As applicants are more numerous than the vacancies, it will be seen that the youth of Prussia are

willing to make considerable sacrifices, to forego wages, and lay out a substantial sum, for the privilege of securing a teacher's position.

For Women no organised examination system existed before 1874. It has already been said that the number of women teachers, although increasing, is still very small,—only 13 per cent. of the whole number; and that women are never placed in principal charge or sole charge of any elementary school. At the present date the women's Training Colleges produce an output largely in excess of the demand for elementary schools; the surplus find employment in private tuition and in higher girls' schools. In fact, women's Training Colleges are not institutions which exist, as the men's Training Colleges exist, for the sake of the Volksschule alone, but they serve a more general purpose; and the students are consequently not bound to become elementary teachers.

One result of these circumstances, and of the further fact that girls are not drawn away so much as boys into business occupations, is that no Präparanden-Anstalten are provided for girls. They proceed to the Training Colleges direct from their schools. In some cases the schools have received the privilege of examining for the certificates, under certain conditions imposed by the State, fixing the curriculum, and the length of the course, which must last three years.

Since 1894 the age has been fixed at 19. A second examination is required for certain superior posts, but the full qualification for the Volksschule is gained in a single test.

Some statistics of the Training Colleges may be useful for purposes of comparison. For 1897 the figures were as follows:—

MEN.

Colleges.	Students.					
	Total.	In College.	Out of College.	1st Year.	2nd Year.	3rd Year.
115	11,034	5,997	5,037	4,095	3,622	3,317

There were 750 fully qualified, and 82 additional teachers; and there was one student to every 2,704 inhabitants of Prussia.

WOMEN.

*Public Colleges.	Students.					
	Total.	In College.	Out of College.	1st Year.	2nd Year.	3rd Year.
11	748	372	376	279	233	236

*Besides some 30 schools to which the right of holding a final examination has been accorded.

There is no difficulty in increasing the number of Colleges, or in establishing additional classes at existing Colleges, as the fact that the number of students has increased 135 per cent since 1870 convincingly shows.

XI.—Cost of the Volksschule.

The population of Prussia in December, 1895, was 31,855,133, and the total cost of the Elementary Schools in 1896 was 185,917,495 marks (£9,295,874), not including the cost of central and local administration. From this amount, for purposes of comparison, must be deducted the cost of new buildings—27,574,781 marks; so that the total charge for *maintenance* is 158,342,714 marks. This, divided by the number of children at school (5,236,826), gives 30·24 marks, or £1 10*s.* 3*d.*, as *the average cost per head.** A similar calculation shows for Prussian town schools alone, £2 0*s.* 2*d.*; for Prussian country schools alone, £1 2*s.* 3*d.*

The estimated population of England and Wales in 1896 was 30,800,522, and the total amount expended on Elementary Education, including the cost of Training Colleges, but not that of central and local administration, is not less than £11,000,000, of which the State contributes, under the operation of recent Acts, about £8,000,000. In Prussia, the State expends on Elementary Schools, Präparanden-Anstalten, and Training Colleges, about 75,000,000 marks, or £3,750,000, while the percentage of the total expense for Elementary Schools alone, borne by the State and the localities respectively, is returned as follows:—

	Whole Kingdom.	Town.	Country.
Paid by State ...	29 per cent.	16 per cent.	39 per cent.
„ by localities	54 „	69 „	42 „

This return includes the cost of buildings and interest on loans, taken on an average of three years. The proportion not here accounted for comes from endowments.

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* The official returns, which *include* the cost of new buildings and interest on building loans, give the cost per child for Prussia as follows:—

	1886.	1896.
Whole Kingdom ...	24 marks	35·5 marks.
Towns	33·5 „	47 „
Country	19·8 „	29·7 „

It is difficult to compare any of these figures with the corresponding returns for this country. The cost per head for *maintenance* in England and Wales in 1896 was £1 19*s.* 6¾*d.* in Voluntary Schools, £2 11*s.* 11¾*d.* in Board Schools; but we have to remember that this calculation is made upon the *average attendance*, which is less by 1,000,000 than the number enrolled; and it includes the outlay on slates, books, and other materials which the scholars themselves provide in Prussia.

SAXONY.

The Elementary School system of Saxony resembles that of Prussia in its fundamental principles. Every school embracing children of school age, whether public or private, is under State control and inspection. No one without a teacher's qualification is allowed to teach even his own children. No school, however small, may be carried on without approval; or if it is conducted for profit, without the express sanction of the Ministry at Dresden.

But differences of practice have arisen not only from the general tendency of independent organisations to drift into courses of their own, but also from the smaller size and greater homogeneity of the State (of which the population is about 3,800,000), and from the existence since 1873 of a comprehensive Saxon Education Law.

I.—General Administration.

The central authority, the Ministerium des Kultus und öffentlichen Unterrichts, in Dresden, derives its power from one source only, the Education Law. The difficulties therefore which arise in Prussia from varying local laws and questions of competence, are not experienced in Saxony. There is no devolution of administrative work to provincial authorities, but the whole business of education is transacted by the Ministry, consisting of the Minister and seven Räte, of whom three are jurists and four educational experts. The inspectors (Bezirksschulinspektoren) are none of them beneficed clergymen, as in Prussia, but they are all full Government officials. The inspection of Training Colleges is entrusted to one of the Ministerial Räte, that of the Gymnasien and Real-Schulen to another; and the Minister himself spends some days in seeing schools every year.

The qualifications and duties of the inspectors are much the same as in Prussia, but their districts are very much larger, varying in size from a population of 53,000 to one of 336,440. Besides the day schools, public and private, the Evening Schools of every place require annual inspection, and for their assistance in their onerous clerical work the inspectors are in the larger districts provided with clerks. As in Prussia, it is not regarded as necessary to report on every class each year; but whereas inspection in Prussia means a rapid examination of the children, it takes the form in Saxony of observation of the ordinary teaching.

Other supervising officers are the Amtshauptmann, who, like the Landrat in Prussia, is chiefly concerned with externals, and the Bezirksartzt (Medical Officer of Health), to whom all sanitary questions including those which relate to light, ventilation, and warming, and the general adequacy of new buildings, are referred.

Under the Bezirksschulinspektor stands the Local Inspector (usually as in Prussia the local clergyman), who presides in the

elected School Committee, of which in Saxony the teacher is an *ex-officio* member. He is the immediate superior of the teacher, whose position and rights as a civil servant are much the same as in Prussia, except that his minimum salary is rather better, while on the other hand he is not entitled to increments unless he has charge of more than forty children.

At present the minimum pay of an ordinary teacher is 1,000 marks, rising by degrees to 1,800 marks after 30 years' service; but after the present year it will run from 1,200 to 2,100 marks. For a Director (master of a large school) with ten classes, the minimum is 2,700 marks; for other Directors, 2,250 marks. It should be borne in mind that these sums are minimum amounts, and that a dwelling-house or its equivalent, and payment for Church duties where they exist, are additional. So far as can be gathered from the last Saxon returns, which are much less complete than those of Prussia, and relate to the year 1894, there were 308 Directorates with an average salary (apparently besides house accommodation) of £183; and 7,161 permanent places for ordinary teachers (men and women), averaging £96. The proportion of women is even smaller than in Prussia. Out of 8,659 teachers (Lehrer und Hilfslehrer)* in 1894, only 245, or 2·8 per cent., were females. On the whole the teacher's chances in Saxony are rather better than in Prussia. He is enabled, if his College course is successful, to go to Leipzig for a course of pædagogy, no further examinations are required for the higher school posts, and many good appointments are open to him.

When a school vacancy has to be filled up, it is the duty of the inspector to select three candidates, of whom the School Committee must choose one. The teacher is bound to teach 32 hours a week in the Day School, and he must give extra time if the Committee requires it, whether in the Day School or the Evening School, and for this he is remunerated at the fixed rate of £1 16*s.* a year for each weekly hour.

The Saxon law imposes rules for attendance, admission, change of school, and kindred matters, which differ very little from those which are operative in Prussia. But it further requires boys from 14 to 17 years of age to attend Continuation Schools, either for two hours a week all the year round, or for four hours a week in the winter half-year; and the local School Committees have power, which is sometimes exercised in industrial centres, to extend the time to six hours.† In such places technical classes are held, adapted to the industries of the place, and in all the larger towns a variety of subjects are taught. But in country villages the instruction is limited to German and Arithmetic, German including, however, the study of a special reading book which contains much History, Geography, and Elementary Science, as well as information about the simpler laws of the

* In Saxony a Teacher who has not passed both his examinations can only be employed as a Hilfslehrer, *i.e.*, as a class-teacher liable to removal. He cannot be placed in independent charge of a school.

† They may also establish compulsory attendance for Girls for *two* years; but there are only six Girls' Continuation Schools, with 1,699 scholars.

country. The classes are now usually held in the evenings of week-days, much more seldom on Sundays. The teachers are the Day School teachers, who are remunerated on the scale given above. Fees may be, but in fact are not, charged for instruction.

Attendance is very strictly enforced, and the punishments for misconduct detailed in ministerial orders indicate that strong measures are sometimes necessary for the preservation of discipline. A scholar who does not attend may be forcibly brought to school. In case of misbehaviour the teacher may resort to rebuke, imposition, keeping in for an hour, or admonition in the presence of the inspector. The Local Inspector or Committee may rebuke the scholar, or admonish his parents, impose imprisonment, *i.e.*, detention in the school premises, up to 12 hours, and serious cases are visited by official expulsion. There is also strict surveillance of the conduct of these youths outside the school. They are, for example, not allowed to attend public dances, or any doubtful places of amusement.

The financial returns for 1893 (the last available) show that the total expenditure on Elementary and Continuation Schools (not including Practising Schools) was in that year £1,169,357, of which £200,582 was paid by the State; the Day School fees produced £212,280; and the remainder (£756,493) came from local sources. There are no data showing the cost of *maintenance* by itself.

II.—Day School Organisation.

The term "öffentliche Volksschule" includes in Saxony three kinds of schools, distinguished by the number of hours of instruction, the amount of the fees, the subjects taught, and the maximum size of the classes. These three kinds are Simple, Middle, and Higher (einfache, mittlere, and höhere Volksschule);* whereas in Prussia the Mittelschule and höhere Mädchenschule, though regarded as belonging to the lower order of schools, are not classed under the head of Public Elementary Schools.

(*a.*) The einfache Volksschule is a half-day school, and is divided into at least two classes, except that in very few exceptional cases of small numbers a one-class organisation is allowed. The class must not exceed 60, a limit considerably lower than that of Prussia, which is 80 for one-class schools, 70 for all others. Fees must be charged, but they are determined by the locality, and usually amount to five or six marks a year. The subjects are the same as those of the Prussian Volksschule.

These schools are the true Public Elementary Schools which supply the needs of the poorest part of the population, and they are consequently the schools of the villages.

* These terms, "mittlere" and "höhere" Volksschule must not be confused with the terms "mittlere Schule," as applied to the Realschule," and "höhere Schule," as applied to Gymnasien and Töchterschulen.

In some towns (as in Dresden) they do not exist, but when this is the case, the fees of the mittlere Volksschulen are lowered.

(*b.*) Mittlere Volksschulen (called in Dresden Bezirksschulen) must have at least four classes, and be under a Director. They are nearly all large town schools. The subjects of instruction are the same as those of the einfache Volksschulen, but with the extended scope rendered possible by longer hours. The third and fourth years must receive 20 hours' teaching per week, and in the 5th to 8th years 26 hours are prescribed for boys, 24 hours for girls, besides Drill and Needlework; and the course may extend to nine years. The fees are higher, and the number of teachers approaches or equals that of the classes. The limit of the class is 50.

(*c*) The höhere Volksschulen (called in Dresden Bürgerschulen) provide a higher course of instruction, which must include one Modern Language. They charge still higher fees, and are assumed to extend their course to ten years. The hours are at least 22 in the third year, and must rise to 30, but may not exceed 32, in the final stage.

The chief statistical facts may be shown as follows (for 1894)

	SCHOOLS.		SCHOLARS.		CLASSES.	
	Number.	Per cent. of total.	Children in attendance.	Per cent of total.	Number.	Average size.
Einfache Schulen	2,005	89	453,749	73	9,998	45
Mittlere	210	9·3	147,384	24	3,749	39
Höhere	39	1·7	16,715	3	573	30
	2,254	100	617,848	100	—	—

These figures show that both the number and the size of *abnormal* classes are kept within reasonable bounds. In the einfache Schulen such classes number only 615, or 6 per cent. (as against 18 per cent. in Prussia), and their average size is only 67 children, or 7 above the normal limit. But if we consider not the class, but the number of children entrusted to one teacher, we find that for each of the 8,617 places which require a fully employed teacher there are on the average 71·7 children; and with a class limit of 60, a single teacher may and often does under the half-day system teach 120.

The Halbtagsschule, which in Prussia is only called into being when the einklassige Schule becomes impossible, is in Saxony the archetype. With very few exceptions, even quite small einfache Volksschulen are divided into morning and afternoon classes. It is true that many of the larger ones include parallel upper classes, which attend both morning and afternoon, and

are therefore partly mittlere Volksschulen; but these are cases of development from the original type, which remains unaltered in the great majority of cases.

Further, the Halbtagsschule is a true half-day school. There is none of the intermixture of attendances which is so often found in Prussia, but one section comes only in the morning, and the other only in the afternoon, with the small modification necessary on half-holidays. This arrangement sets the juniors free every morning, and the seniors every afternoon, throughout the year, and the Prussian plan of concentrating all the work into the summer morning is neither necessary nor allowed.

It may be said of the Saxon system that it is much more symmetrical and cut to pattern than the Prussian; the letter of the law is more exactly observed, and official supervision seems to be closer; with the result, amongst others, so far as I had the opportunity of judging in a very limited time, that the buildings, furniture, and apparatus are more adequate and in better condition. It is possible, however, that so paternal a control has its disadvantages.

The half-day school, as it exists in Saxony, actually and not merely theoretically fulfils its avowed purpose of securing smaller classes; but its defects are admitted. Herr Grüllich, now a Schulrat in the Kultus-Ministerium, and formerly an Inspector, insists in his *Lehrplan für die einfache Volksschule*, that the hours of instruction are insufficient. In the published comments* of the Ministry in 1872, upon the proposals which are now law, it is pointed out that the limit of the Class (60), and of the number (120) to be taught by one teacher, was only so fixed because it seemed impossible to reduce it, and it is strongly urged that individual localities should do what they can to lower it for themselves.

The same care is taken in Saxony as in Prussia to protect religious minorities in so far as they profess a religion recognised by the State, and to secure that all children, whether their parents accept the teaching of the school or not, may receive religious instruction; but there are no schools, like the paritätische Schulen of Prussia, in which teachers of more than one denomination are employed upon the staff, with a view to the representation of different creeds in the same school.

It should be noted here that it is usual in Saxony for parents of all classes to send their sons (not their daughters) to the Elementary School, especially the mittlere and höhere Volksschulen.

The commonest forms of the village school, which is always an einfache Volksschule, are—

(*a*.) The two-class school under one teacher, in which the minimum number of hours of instruction per week is for—

Class I. (5th to 8th years)...	...	18.
„ II. (1st to 4th „ ...	...	14.

* Quoted by Herr von Seydewitz (now Minister of Education) in his edition of the Education Law, *Das Königlich Sächsische Volksschulgesetz*, p. 69.

Class I. attends in the morning, Class II. in the afternoon. Of the whole number of einfache Volksschulen, 42 per cent. were thus organised in 1894.

(*b.*) The four-class school under two teachers, with minimum hours as follows:

Class I. (7th and 8th years)	... ...	20.
„ II. (5th and 6th „)	... ...	18.
„ III. (3rd and 4th „)	... ...	14.
„ IV. (1st and 2nd) „)	... ...	12.

Classes I. and II. attend in the morning, Classes III. and IV. in the afternoon. Such schools numbered 24 per cent. of the total in 1894.

This very limited allowance of time may be, and often is, increased by the School Committee representing the wishes of the locality.

It is a clear advantage of the Halbtagsschule that even in the smallest schools so organised not more than four years can be grouped for instruction; and when the school is larger, and there are two teachers, not more than two years. Thus in a two-class school the first and second years have Anschauungsunterricht, the third and fourth Heimatkunde (which enlarges the observation of natural facts, and lays the foundations of History and Geography), and the 5th to 8th years (Class I.) proceed to a four-year course in History and Geography much as follows:—

History
- A. German History to the Discovery of America.
- B. The Reformation to the present date.
- C. Pictures from Ancient History.
- D. Modern History.

Geography
- A. Saxony.
- B. Germany.
- C. Europe.
- D. Outlines of the World.

In a school of four classes, an arrangement like the following is adopted for alternate years:—

Geography—3rd and 4th years (Class III.):—
- A. Heimatkunde.
- B. Saxony.

„ 5th and 6th years (Class II.):—
- A. Germany.
- B. Europe (outlines).

„ 7th and 8th years (Class I.):—
- A. Europe (more detail).
- B. The World (outlines).

* The Schools taught in one class, being exceedingly few, are left out of account in the official returns, and need not be considered here. But mention should be made of 110 schools with *three* classes under one teacher, taught one after another through the day. It is satisfactory to know that the teacher is remunerated for overtime.

The Reading Books are chosen from a short list issued by the Minister, but inspectors are instructed to secure the use of the same books throughout each district. Although the groups for reading are, as in other subjects, more limited than in Prussia, the quantity of matter covered is not larger. The general view of the aim of the School, of the use of the Reading Book, and of the purpose of individual subjects, is the same, and must be taken into account in any judgment upon the shortened hours and other characteristics of the Halbtagsschule.

The following are specimens of Time-tables, one used in a two-class, and the other in a four-class school in the neighbourhood of Dresden :—

WINTER TIME-TABLE OF A TWO-CLASS SCHOOL (56 CHILDREN).

(The hours are one hour earlier in Summer.)

CLASS I.

Hour.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8—9	Religion	Religion	History	Religion	Religion	Geography
9—10	German	German	Arithmetic	German	Arithmetic	German
10—11	Arithmetic	Natural History	Singing	Copy Writing	German	Singing
11—12	Copy Writing	—	—	Home Lessons	—	—

CLASS II.

1—1.45	Religion	Religion	11—11.45 Object Lesson and Heimatkunde	1.0—1.45 Religion	Religion	11—11·45 Object Lesson Heimatkunde
1.45—3	Reading and Writing	Reading and Writing	11.45—12.30 Reading and Writing	1.45—2.30 Arithmetic	Reading and Writing	11·45-12·30 Arithmetic
2—3.30	Arithmetic	Arithmetic	12·30—1.0 Singing	2.30—3.30 Reading and Writing	Arithmetic	12.30—1.0 Singing

SUMMARY OF HOURS.

—	Class I.	Class II.
Religion	4	3
German	5	5½
Arithmetic	3	3
Writing	2	—
History	1	—
Geography	1	—
Natural History	1	—
Singing	1	1
Anschauungsunterricht, or Heimatkunde	—	1½
Home Work	1	—
	19	14

Here the prescribed minimum of time is exceeded in Class I. by one hour. Needlework, which is not taught in rural schools in the first four years, is provided for, but does not appear in the time-table. Drawing, which is not obligatory for two-class schools, is not taught, and there is no drill.

WINTER TIME-TABLE OF A FOUR-CLASS SCHOOL (188 CHILDREN).

(The hours are one hour earlier in Summer).

Hour	Class	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8—9	I	Religion	Religion	History	Religion	Religion	Geography
	II	Do.	Do.	Geography	Do.	Do.	German
9—10	I	German	German	Geometry	German	German	Arithmetic
	II	Do.	Do.	Arithmetic	Do.	Do.	Copy-writing
10—11	I	Naturkunde	Arithmetic	—	Drawing	German	Class III. 10—12·30 Nat. History 60′ Arithmetic 60′ Singing 30′ Class IV. 10—12 Object Lesson 30′ German 60′ Singing 30′
	II	Arithmetic	Drawing	History	Nat. History	Copy-writing	
11—12	I	Arithmetic	Copy-writing	Class III. 10—12·30 Religion 60′ German 60′ Singing 30′ Class IV. 11—1 Religion 30′ German 60′ Singing 30′	Drawing	Singing	
	II	—	Singing		Arithmetic	Home-work	
12—1	I	Home-work	—		—	—	—
	II	—	—		—	—	—
1—2	III	Religion	Heimatkunde	—	Arithmetic	Religion	—
		Class IV. Religion 30′ German 60′ Arithmetic 30′	Class IV. Object Lesson 30′ German 60′ Arithmetic 30′		Class IV. Object Lesson 30′ German 60′ Arithmetic 30′	Class IV. Religion 30′ German 60′ Arithmetic 30′	
2—3	III	German	German	—	German	German	—
3—4	III	Copy-writing	Arithmetic	—	Copy-writing	Home-work	—

SUMMARY OF HOURS.

——	Class I.	Class II.	Class III.	Class IV.
Religion	4	4	3	1½
German	5	5	5	6*
Arithmetic	3	3	3	2
Writing	1	2	2	—
History	1	1	—	—
Geography	1	1	—	—
Natural History	—	1	1	—
Elementary Science	1	—	—	—
Geometry	1	—	—	—
Drawing	2	1	—	—
Singing	1	1	1	1
Anschauungsunterricht	—	—	1	1½
Home-work	1	1	1	—
	21	20	17	12

* Includes writing.

Besides (in Classes I. and II. only), Drill for Boys, 2 hours in Summer, and Needlework for Girls, 2 hours.

III. TRAINING OF TEACHERS.—(1.) *Men.*

The eighteen Men's Training Colleges of Saxony all admit students at thirteen years of age, and have a course of six years. One of them is purely residential, one purely non-residential, and the remainder are mainly residential, with a proportion of day students. Altogether there are, according to the latest return, 2,386 students living in College, and 736 day students. One of the Colleges is Catholic, the rest are Evangelical.

The State defrays the cost of lodging and tuition; the student pays £9, more or less, annually towards the expense of board, and provides his own books, but poor students are assisted from State funds. Some of the Colleges have foundations, but these also receive assistance from the Treasury.

When a deficiency of places exists, one method of relief is to establish a parallel class, or sometimes more than one, moving up year by year, side by side with a regular class. No class may, as a rule, exceed 25 in number, so that, apart from these parallel classes, the College is limited to 6 × 25—*i.e.*, 150 students.

The Practising Schools are supported partly by fees, which, as in other schools, may be remitted in cases of poverty; and they are taught, not, as in Prussia, by students under supervision, but by teachers who are members of the College staff, set apart for this work, and made responsible for it. They are mixed schools, and are treated in the official returns as mittlere Volksschulen; but they may be, and often are, einfache Volksschulen, with the limited curriculum of this kind of school. The number of children in a class is limited by law to 24, but is allowed by Ministerial Order to be raised to 30.

As in Prussia, Practising Schools are exempt from ordinary inspection, but of course come under the general cognizance of the Schulrat from the Ministry who inspects the Colleges.

Students are admitted at Easter after passing an examination, and enter into a bond under pecuniary penalties not to leave the College prematurely of their own free will, or to refuse a post offered them at the end of their course, until they pass their second examination. The hours of work during the course are strictly prescribed for each subject in Ministerial Orders and the total amount, excluding music practice, preparation and the optional subject of Shorthand, must not exceed 36. But as music and preparation require 17 hours weekly, the work of the students is heavy, and it appears to be the opinion of the Directors that it is excessive. In Prussia I heard the same opinion expressed about the work of students, but not about that of the Präparanden.

The following table shows the prescribed apportionment of time:

	CLASS					
	I.	II.	III.	IV.	V.	VI.
Religion	3	4	4	4	4	4
German	3	4	3 or 4	3 or 4	3 or 4	3 or 4
Latin	2	2	4 or 3	5 or 4	7 or 6	7 or 6
History	2	2	2	2	2	2
Geography	2	2	2	2	2	2
Sciences	2	2	3	3	2	2
Arithmetic and Geometry	3	4	4	5	4	4
Teaching: Theory	5	5	4	—	—	—
Teaching: Practice (see below)	4	4	—	—	—	—
Music (see below)	3 (5)	3 (5)	3 (6)	4 (7)	4 (6)	6
Writing	—	—	1	1	2	2
Shorthand (optional)	—	—	1	2	2	—
Gymnasium	2	2	3	3	3	3
Drawing: Freehand	Private work and quarterly tests		2	2	2	2
Drawing: Geometrical	1	1	—	—	—	—

In music some students are dispensed from certain parts of the instruction after the first year.

Although every student in the fifth and sixth years devotes four hours a week to the Practising School, very little time is spent in actual teaching; and some Directors of Training Colleges and others would gladly see it increased. The amount is entirely undefined, but it appears to vary from ten to fifteen hours in a year. The students of the two senior years, who number about fifty, are divided into groups of about six each, and hear lessons given to illustrate points previously dealt with theoretically, keeping to one set of subjects for a time and then changing. The lessons are followed by discussions. The Saxon method resembles the Prussian in so far as students begin to study the Theory of Teaching in the last year but two, and

do not come into contact with the schools until the last year but one; it differs from it as regards independent practice, and so far as I have been able to form an opinion, to the disadvantage of Saxony.

The examinations held during the course are :—

(1) Half-yearly examinations at Michaelmas and Easter conducted by the College. The former is a written examination on technical subjects; the latter written and oral, dealing with the work in general. Once a year, after Easter, the students are classified for attainments and for conduct, and a report is sent to their parents.

(2) At Easter in each year the *Leaving Examination Abgangsprüfung or Schulamtskandidatenprüfung*) is held, in which the students who have reached the end of their course are examined by the College, under the oversight of a Kommissar, appointed by the Ministerium. In most cases the Director is himself Kommissar, but a Schulrat from the Ministerium acts in this capacity for the two women's Colleges, and the District Inspector for the Catholic College. The Church authority may also send a Kommissar, and it is the practice of the present Ministerial Schulrat to attend all examinations, and put questions. The tutors of the College are the examiners, each in his own subject. Candidates need not be students, but the number of non-students examined is said not to exceed ·5 per cent.

The plan of the examination is as follows:

I. Written Work.

A. Not under surveillance, but done in ten days and sent in to the Director—

(i.) Essay on a pædagogic subject.

(ii.) Full notes of a lesson on a religious subject.

B. Under surveillance (4 days). Papers on Mathematics, Realien, and Music, and Latin Translation.

II. Practical—

(i.) The above lesson delivered.

(ii.) Another lesson (20 minutes) after one day's preparation.

(iii.) Drawing, Writing, Music, Gymnastics.

III. Oral. All subjects; in sections of six students each. Not more than four hours for each section.

After the examination the staff arrange the students in classes, I. (*a*), I. (*b*), &c., to III. (*b*) for attainments, and also for

conduct and diligence. Those who fail may have a second chance, but not a third. In fact, however, failures are extremely rare.

After passing the Abgangsprüfung, students are qualified for appointment as Hilfslehrer. but are not, as in Prussia, placed in independent charge of a school until they have gone through the *second examination (Zweite Prüfung or Wahlfähigkeits-Prüfung)*, which follows at an interval of not less than three or more than five years after the first; so, however, that if a candidate wishes to be examined at the Christmas which falls in the third year he may do so, thus reducing the period to 2¾ years.

The second examination, like the first, is conducted by the College itself under the oversight of a Kommissar from the Ministerium (generally the District Inspector), and another from the Church Authority. It consists of:—

1. Written work:—
   - A. Not under surveillance (14 days allowed). Essay on a pædagogic subject, and a sketch of a lesson.
   - B. Under surveillance. Questions on Method, etc.
2. Practical:—
   - A lesson of 30 minutes. (Half-a-day allowed for preparation).
3. Oral:—
   - Religion, German, Psychology, Pädagogik.

The Kommission classify the candidates after the examination, taking into account the testimonials presented before admission to it. Those who receive the mark I (*a*) may go to the University of Leipzig for two years and then pass out in Pædagogics; and, with the consent of the Ministry, those also who are marked I (*b*).

This provision for the academical training of deserving teachers does not exist in Prussia. It is doubtless of very high value, as forming a stepping-stone upwards after the Training College course; and it probably explains why the progress of teachers to good and even distinguished positions is much commoner in Saxony than in Prussia. In both countries alike it is the Colleges that examine for the Certificate, without apparently the evil consequence of a depreciated or uncertain standard. Official opinion at any rate scouts the idea of serious variation. It is admitted that one College may take a higher standard in one subject, another in another. But the general result is held to be substantially level. It may well be that the solidarity of German teaching, the existence of definite educational tenets, and the exact prescription of syllabuses secure a much greater uniformity than would otherwise be possible. A long course of preparation, with a certain amount of weeding as it proceeds, in addition to

the guarantee of the admission examination, certainly creates a presumption of tolerable quality in the students at the end of their time. The examinations are safeguarded, and more or less kept uniform, by the oversight of official experts; and if we remember that not more than ·5 per cent. of the trained students fail in our own second year's examination, the paucity of failures in Germany need excite no surprise.

(2.) *Women.*

As in Prussia, Colleges for women are on a somewhat different footing from those for men, as regards the sources from which the students are drawn, the conditions upon which they are received, and their destination. There are two such Colleges only, one at Dresden with a five-year course, and admission at 14 years of age; and the other at Callnberg, with a four-year course, and admission at 15. The Dresden College is entirely non-residential, Callnberg entirely residential. Of the 130 students at Dresden, all but 25, who live *en pension* in the town, reside at home. At both places the students are drawn from very various ranks of society. Some are daughters of officers, merchants, and officials of various kinds; others of mechanics and workmen. But there is this difference. The 8-class Practising School at Dresden is, so far as regards fees and instruction, a höhere Volksschule for girls, though, as it has an 8-year and not a 10-year course, it does not fulfil all the technical conditions of this class of school. The fees vary from £2 8*s.* in the lowest, to £6 a year in the highest class, and French (obligatory) is taught in Classes I. to V., English (optional) in Classes I. and II. The scholars are thus mostly children of parents in good circumstances, and it is from the school that the College is mainly recruited. At Callnberg the Practising School is an einfache Schule, which does not feed the College.

The consequence at Dresden is, that girls come into the College with a good foundation of attainments, and, including their school life, they spend 13 years in the institution, passing through a continuous course of instruction under a single management. They seem to be remarkably well taught, and their proficiency in modern languages is astonishing to an observer accustomed to the low English standard. I heard several of the English and French lessons, which are always given by German teachers qualified by residence abroad. The teacher of English, for instance, had spent 13 years in this country. The whole of the lesson is conducted in the foreign language, which the teachers of the higher classes use with just as much freedom and rapidity as if they were addressing French or English children. The students in Class I. seemed to miss nothing that I said to them in English, though I took no pains to simplify or slacken speed, and their oral translation of a long passage of *My Mother's Picture* into German was quite admirable.

There can be no doubt of the vast superiority of German over English instruction in modern languages; and no doubt either,

as I believe, that the best teacher of languages for an ordinary class is a native who has studied abroad. The English standard will never become satisfactory until, like the Germans, we insist upon the qualification of our own native teachers by foreign residence. So long as it is imagined that a foreign language must needs be taught by a foreigner, the German or the Frenchman will continue to find in our schools the opportunity which he wants, while our English teachers will remain half competent, and our scholars less than half taught.

The College building at Dresden is handsome and well planned, and excellently equipped with all that is necessary for teaching purposes. Still more imposing is the men's College at Plauen, a great pile with 144 fine rooms, and every possible convenience for its purpose. Both these institutions, one of which cost £27,000 and the other £50,000, are examples of the open-handed generosity of the Saxon Government towards education, and of the dignified scale upon which modern Germany plans its public edifices.

As in Prussia, the destination of the women students is not by any means always the Elementary School. They do not bind themselves at admission; they pay fees, and at the end of their course may do as they please. At Dresden, where the fee is £6 a year, about one-fourth become elementary teachers, another fourth teach in private schools, another fourth in families, and the remainder do nothing.

Students are admitted at Easter, by examination, and generally into the lowest class, but sometimes also into more advanced classes, after passing a higher test. The curriculum differs from that of men students in the omission of Latin, and the inclusion of French and needlework, and (optionally) English. The hours of work, which are felt to be very long, are thirty-four per week, not including preparation at home and the time required for optional subjects—English, Piano, Harmony, and Shorthand. They are apportioned as follows :—

	CLASS.				
	I.	II.	III.	IV.	V.
Religion	2	2	3	3	3
German	3	3	3	4	4
French	4	4	4	4	4
English (optional)	3	3	3	3	3
History	2	2	2	2	2
Geography	1	1	2	2	2
Sciences	2	2	3	3	3
Arithmetic and Geometry	2	2	3	3	3
Teaching { Theory	5	5	4	—	—
Teaching { Practice	3	3	—	—	—
Music	4	4	4	4	4
Writing	—	—	1	1	1
Shorthand (optional)	—	—	—	2	2
Gymnasium	2	2	2	2	2
Drawing	2	2	2	2	2
Needlework	2	2	2	2	2

The arrangements for practice in Teaching do not differ from those of the men's colleges; and the examinations are the same, except that less severe tests in practical teaching are imposed. Women are not, as in Prussia, qualified by a single examination for work in Elementary Schools.

(3.) *The Training College Staff.*

In men's colleges two-thirds of the staff employed in the College itself (as distinct from the Practising School) must have University degrees. In Prussia this qualification is required only in the case of the Director and the first teacher. The tutors may therefore be classified under four heads, according as they have been trained.

(1) In a Training College only.
(2) In a Training College, but with a further technical qualification.
(3) In a Training College and at a University.
(4) In a Gymnasium and at a University.

Those who fall under (1) and (2) must not exceed one-third of the whole number. At women's colleges, where many of the teachers are women, this requirement does not exist.

The number of teachers is always large, but it varies. Thus at Plauen (men), near Dresden, there are 18 for the College of 190 students, and the Practising School of 90 children, of whom five were trained at a University, seven at a Training College, six at both. At Friedrichstadt. where the students number 190, and the children in the Practising School 170, there is also a staff of 18. At Dresden Women's College, with 130 students, and 113 children in the school, a staff of 22 (10 men and 12 women), of whom two men and three women teach in the school only. It is prescribed that ordinary teachers must teach for 26 hours in the week, teachers of technical subjects 28 hours, and the Director 14.

Summary.

The two German Elementary School systems which have been here reviewed differ from one another in matters of external form rather than in fundamental principle. Political obstacles have prevented the passing of a general law in Prussia; the normal limit of the class is not only fixed materially higher, but is also less strictly observed, than in Saxony. The half-day school exists in Prussia as a way out of a difficulty, a measure of relief. In Saxony it is the accepted type. In Prussia the duties of inspection are entrusted in great measure to clerics who undertake them as a bye-work, and are not experts in Education. In Saxony they are performed exclusively by Government officials, but in both countries alike the Minister is the fountain head of a far-reaching

prescription, which rests upon an orthodox educational creed. Canons may vary a little according to locality, but the articles of faith are everywhere the same.

The English system presents a series of contrasts to both.

I. It cannot be said that any articles of educational faith exist in this country. We have not advanced beyond pious opinion. The Colleges and Schools work out their own salvation in their own way. The one goal visible to every school alike is the Grant, which is partly fixed and partly varied according to the quantity as well as the quality of the work. Any system of Payment by Results must be based on arithmetic, and tend to work arithmetically. It effectually secures those results which can be measured by figures; and hence in our rural schools the buildings and apparatus, which are matters of cost, are much more adequate than either in Prussia or in Saxony. But its primary tendency in Education itself is to depress quality and exalt quantity, to elevate what pays best into what *is* best; though no doubt this tendency may be and is much modified by the teacher's sense of duty, as well as by other influences.

The voice of Authority prescribes, it is true, a minimum and a maximum of subjects; but the difference between the two is left to the option of managers and teachers, who cannot put the question of finance out of sight. And again, it is not only the number of subjects that tends to increase, but also the amount of detail within each subject. Much acquisition of knowledge comes to be regarded as the main object of the secular teaching. Nor is this all; for the arithmetic of payments also leads to an equal scale of payments, and speaking broadly, to an inelastic sameness in the treatment of urban and rural, large and small, schools.

In Prussia and Saxony knowledge is the handmaiden of fitness for the duties of life. It is the moral, patriotic, and social training of the child that stands first in the teacher's mind. The subjects chosen for the Elementary School—the indispensable minimum—are those which conduce best to this end. And lest the true end should become obscured by side issues, the minimum must be, except in rare cases, the maximum also. It is of less consequence to teach much, than to turn a limited course to good ethical purpose. The work need not be extensive, but it must be intensive. From this standpoint, shortened hours and much grouped classes seem less open to criticism; the study of the same book for six years admits of the defence that its content is anxiously safeguarded, and that reading and re-reading under wise guidance is the best use of a good book. No doubt there is to be discerned in these practices a large measure of accommodation to circumstances, as well as in the excessive number of children normally entrusted to one teacher, and especially in the abnormal classes of Prussia. But these are the accidents of the situation. It is by purity of educational aim, a firm trust in unity of practice, and a general acceptance of definite pædagogic tenets, that the systems of Prussia and Saxony are fundamentally differentiated

from that of England. Prescription of the course which the teaching is to take follows as a logical corollary, and it is not a matter for discussion in Germany whether State-aided schools, which children must attend without choice, should or should not be left to develop their own individuality, with freedom as to books and syllabuses and methods, and even subjects. Wholesome as variety and enterprise may be in higher schools, which there is no compulsion to attend, and amongst which parents may choose, the whole conditions under which national elementary education is carried on are held to imply the need of substantial unity, and the subordination of individual opinion to expert authority. It follows also that prescription is not oppression The Teacher is a loyal officer of the educational army, and cheerfully follows the flag. He would not understand the meaning of liberty to lead his own regiment on his own theories. But for all that he is, and feels that he is, much more than the personification of rule. There is plenty of room within the bounds of his commission for the influence of his character and example, for the play of his intellect, and for the working of that subtle infection by which one mind acts upon others. It may be that prescription sometimes goes unnecessarily far; but this is a question of detail rather than of the main principle.

II. The contrast is no less striking as regards school attendance. Prussia and Saxony, with their much longer school history, have obtained nearly perfect regularity, and a public opinion which supports it. There is no difference of rule on this point for different localities, next to no exemption or half-time, and the penalty follows swiftly and easily on the offence. Yet rigour is qualified by concession. For the half-day plan in its stricter form sets all the children free for either the morning or the afternoon all the year round; and the compression of work into the morning hours so largely prevalent in Prussia during the summer liberates the afternoon for half the year.

In England the system of compulsion is still in its infancy. Up to a certain point we are in theory more exacting; but public opinion is fluid, the administration of the law cumbrous, lax, and uncertain, and punishment for offences can scarcely be obtained except in cases of long-continued disobedience. We also allow half-time exemption, exemption by attendance, or by a standard of attainment which greatly varies. We have not yet succeeded, as these countries have, in providing our schools with an unfailingly regular supply of the raw material. Nor have we secured the teacher against the serious trouble of capricious migration, or, by confining admissions to a fixed date or dates in the year, prevented the disturbance of work by a constant stream of new comers. Again, the hours of attendance in England are the same for all elder children, though slightly reduced for infants. The two German codes adopt a scale which varies according to class; and although in a Halbtagsschule the general curtailment of time may be too great, yet its principle may be so applied to the junior sections of schools, especially

perhaps to infants' classes, as to solve some practical difficulties without educational loss.

III. There are great differences also in the character and numerical strength of the teaching body. In Prussia and Saxony the number of teachers is comparatively small, because the half-day organisation and a high normal limit of the class are both dictated by economical reasons. No doubt it is too small, and Prussia's greatest need is the establishment of more classes under more teachers. But as two teachers never act in one room, each additional teacher means an additional room, which it is often difficult to obtain. We have seen that the volume of work varies according to the number of teachers employed in a school, and thus automatically adjusts itself to the number of children on the rolls,—an adaptation to circumstances for which there is much to be said.

The general supply of teachers is supplemented from time to time by an increase in the number of Training Colleges, *i.e.*, in the output of trained men and women. All fully employed teachers are qualified adults. The employment of unripe minds and bodies in the work of education is rejected as needless and unsatisfactory. In England, on the other hand, we fit the staff by a strict arithmetical process to the school; and only a very sparing distinction is made between large schools and small as regards syllabus. When we have to provide more teachers, the plan is to swell the army of the untrained, the partially qualified, and the wholly unqualified. We rely upon pupil-teachership not only as a means of training, but as an economy in staffing. The Prussian or Saxon youth improves his mind, and does not teach, till he is mature; the English Pupil-teacher improves his mind much less, and after long teaching practice does not teach better in the end. If it be asked how it is that the German teacher acquires his technical skill in so short a period of practice; the answer is that he starts well equipped with the all-important instrument of *language*. By its means he can create interest, make the most of what he knows, decorate his facts. He has ready to his hand the power of communicating ideas, of establishing an intellectual *rapport* between his scholars and himself.

In England, again, the number of women teachers greatly exceeds the number of men. In Prussia and Saxony the opposite is true. The excess of women in England is partly due to our possession of infants' schools and classes, which in those countries do not exist. But even apart from this fact, the preponderance of women is large. Probably there is no loss here, but great gain. An opinion of the Prussian Education Office already quoted in this paper shows that the Prussian authority would welcome the employment of more women. And it is felt in the same quarter that the Infants' School—which, as exemplified in some large towns, is our national distinction—is an institution which it would be well for the State to recognise.

IV. The last in a curiously long array of differences, extending to every important matter, relates to the religious question. In

the two German countries all the schools are denominational, and the State insists upon the religious instruction of every child, of whatever creed. Minorities are provided for, and any of the three great religious bodies—Evangelical, Catholic, and Jewish—may establish a school with the consent of the Authority. But no taxpayer escapes contribution to the support of the school. In England the attitude of the State is purely negative. Religious instruction is outside the purview of the Education Department, and though minorities are protected against the teaching of the school, no obligation rests upon parents to provide any other for their children.

In conclusion, I have to express much gratitude to officials and others in Prussia and Saxony, who have freely given me facilities, and supplied me with valuable information, at the cost of no little time and trouble to themselves. The kindness and courtesy shown me by the teachers whose schools I have visited, and by the higher officials to whom I have turned for assistance, cannot be too warmly acknowledged.

E M. FIELD.

Christmas, 1898.

NOTE ON IMPENDING CHANGES IN THE PROFESSIONAL TRAINING OF ELEMENTARY SCHOOL TEACHERS IN PRUSSIA.

The August-September (1901) issue of the "Centralblatt für die gesamte Unterrichts-Verwaltung in Preussen" contains the text of the new regulations to be introduced from January, 1902, into the course of training which the Prussian elementary school teacher has to undergo.

As is explained in Mr. Field's paper, there is no pupil-teacher system in Prussia, and the intending elementary school teacher devotes to the work of preparing himself for his professional duties the whole of the time which intervenes between his leaving the elementary school as a pupil and his return as a master. As a general rule, these years are divided between two institutions—the Präparanden-Anstalt and the Seminar. Hitherto the Prussian Government has not strictly regulated the course of study at the former institution, but has contented itself with indicating (*a*) that one modern language might be taught, but that (in order to prolong the period of general education) no instruction should there be given in pedagogy, school management or school practice; and (*b*) with prescribing the subjects for the entrance examination to the Seminar. This was no doubt due in part to the fact that only a minority of these places of preliminary training are directly under Government control, while not a few are in private hands. The course of time has revealed certain defects which this lack of regulation has occasioned, and the need of more equal and satisfactory preparation of the pupils for the Training College has been increasingly felt, while the necessity of drawing a more definite line of division between the tasks assigned to the Präparanden-Anstalt and the Seminar respectively has been universally admitted. Accordingly the new regulations prescribe a fixed curriculum and a detailed course of study for the Präparanden Anstalt as well as for the Training College.

The new time-tables are as follows:—

—	Präparanden-Anstalt.			Seminar.			
	III.	II.	I.	III.	II.	I.	
Pedagogy	—	—	—	3	3	3	
School Practice	—	—	—	—	4‡	4	
School Teaching	—	—	—	—	—	4-6	
Religious Knowledge	4	4	3	3	4	3*	One hour devoted to instruction in method.
Mother Tongue	5	5	5	5	5	3*	
Foreign Languages	3	3	3	2	2	2	
History	2	2	3	2	2	2	
Mathematics	5	5	5	5	5	1*	Instruction in method.
Natural Science	2	4	4	4	4	1*	
Geography	2	2	2	3	2	1*	
Writing	2	2	1	—	—	—	
Drawing	2	2	2	2	2	1	
Gymnastics	3	3	3	3	3	3*	One hour to instruction in method.
Music	3	4	5	4	4	4	
Agricultural Instruction	—	1	5	1	1	—	
Total	34	37	37	38	38	33-35	

‡ These hours are devoted to model lessons in the various branches and are included in the hours assigned to them in the time-table.

The programmes of work assign to the Präparanden-Anstalt much that was previously prescribed for the Training College—*e.g.*, in the mother tongue the greater part of the ordinary grammatical instruction is to be accomplished in the Präparanden-Anstalt, while in the Seminar increased attention is paid to literature; a larger number of the great masterpieces are to be read either in class or in private reading, and, where circumstances admit, some time is to be given to phonetics and to a study of the historical development of the language. It will be seen, therefore, that some portion of the time thus gained in the Training College is devoted to extending the range of the instruction, but the chief advantage which is hoped for is an increased thoroughness in the more directly professional preparation. The main change in the curriculum of the Präparanden-Anstalt is the inclusion of one foreign language, which is no longer optional and which is as a rule to be either French or English, though Latin may be retained where it has already been introduced.

A leaving certificate from the Präparanden-Anstalt is now accepted in lieu of the old entrance examination to the Seminar. An entrance examination, however, is still retained for those candidates who have not passed through the preparatory institution. In the same way the leaving certificate of the Training College admits those who hold it to temporary employment in the service

of the public elementary schools. After a period of not less than two years, and not more than five, all teachers have to undergo a second examination, which is not to be a test as to how far they have retained the knowledge they possessed on leaving the Seminar, but of their capacity to fulfil the duties of a schoolmaster. Into the regulations for this examination certain changes have been introduced, which are not here enumerated, but which tend to give the teacher greater freedom for self-development during the earliest years of his regular work in the elementary school.

A. E. TWENTYMAN.

September, 1901.

SCHOOL GARDENS

IN

GERMANY

SCHOOL GARDENS IN GERMANY.

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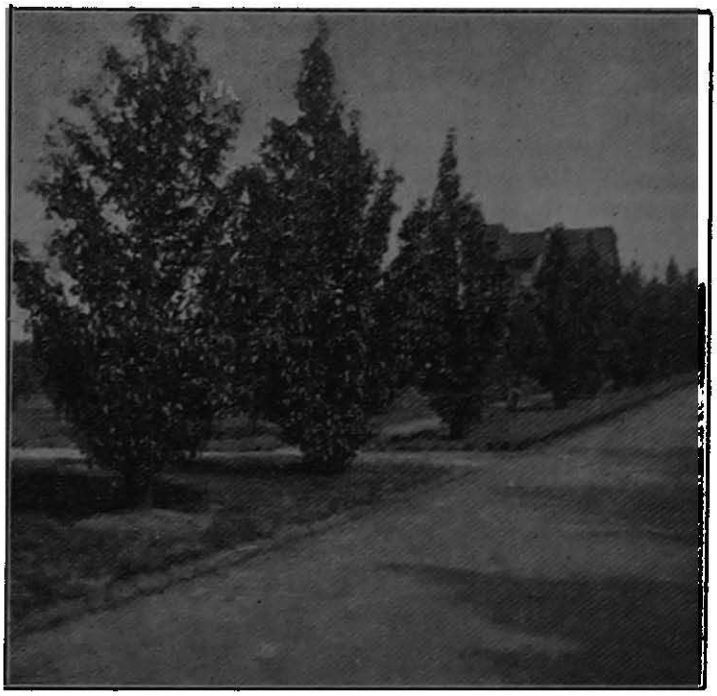


PYRAMIDS IN THE FRUIT GARDEN OF THE FRANKFURT-A-M. POMOLOGICAL ASSOCIATION.

SCHOOL GARDENS IN GERMANY.

INTRODUCTION.

In May, 1901, at the request of the Board of Education, I undertook to visit and report upon certain elementary schools in Germany where gardening forms part of the ordinary work of the scholars. In presenting the following report I beg to offer my sincere thanks both to the educational authorities and the principals of institutions, and to many head teachers, for the kindness and courtesy with which they received me, and for the unsparing trouble which they took to show and explain to me all that I came to investigate. I also hope that the observations and opinions which I record may appear as valuable to those who may read them as they have been interesting to me to collect.

1. A VISIT TO THE ELEMENTARY SCHOOL AT GEISTINGEN, IN THE VALLEY OF THE SIEG.

Furnished with an introduction from the authorities at Cologne, I paid a visit to the district inspector of schools at Siegburg. He told me that he had charge of about a hundred schools. The occupations of the people were mostly agricultural or horticultural, but there were a few manufactories of various kinds, such as weaving, pottery, and agricultural implements. A few years ago, the inspector said, the fruit trees were sadly neglected, and the peasants knew so little about fruit growing that they bought from the south of Germany worthless trees which were rejected by the growers there, and sold for a few pence to speculators, who made a good bargain by selling them at advanced prices to the Rhinelanders. More than this, the peasants of the Valley of the Sieg knew no more how to plant or tend their trees than how to choose them.

Mr. Goestrich found in the mayor of a neighbouring town a reformer, who began by planting some four thousand fruit trees of good sorts after approved methods. Local horticultural societies were ready to spread information. Working with such support, the inspector commenced to interest the schoolmasters in the village schools in the theory and practice of horticulture.

At the present time, after some ten years' work, he has established a school garden in all of his hundred schools, except in one or two towns in the district where land is too expensive. The inspector was anxious to combine theory and practice.

His first difficulty was that the teachers, although they had been taught science at the training college, had learnt nothing that served any practical purpose. There are, however, horticultural

schools at Cologne and Bonn. Arrangements were made to enable teachers to attend courses of theoretical and practical instruction in these institutions, and after they had introduced gardening into their schools, they were assisted by visits of inspection and by advice from the same source.

With respect to the sale of the produce, there is no local organisation for an export trade, but there is a ready sale for fruit and vegetables in the neighbourhood, and a master, besides supplying his own house, can make an increase to his salary amounting to £15 a year.

As an example of one of the best of the school gardens in his district, the inspector referred me to the school at Geistingen, which I visited on the 30th April.

Arriving at half-past eight, I found the upper class, which consisted of about thirty boys and as many girls, finishing their arithmetic lesson.

The head master, who was most ready to explain his methods, changed the lesson and gave the boys an oral examination in the growth of plants. His object was to show me how he dealt with the theory of the subject before conducting me over the gardens.

The boys were about twelve or thirteen years old. Their answers were prompt and full, and their language was correct and free from dialect. They were unquestionably interested in the subject.

The examination extended to the nature of the root and the working of the root hairs and their absorbing powers. Various experiments were discussed which the boys had evidently seen and understood. Something was then said of the various salts that were in solution and imbibed by the cells of the plant. The stem and the bark were next dealt with, and the course of the sap from the roots upward was traced to the leaves.

The evaporation of water from the leaves was explained, and various experiments called to mind to show the effect of sunshine. Then followed an account of the effects of cutting a ring in the bark (1) of a stem and (2) of a shoot, and the explanation of the results was readily given by the boys. This led to an explanation of the process of grafting, and some of the boys were here set to work to make a tongue graft, which they easily did.

At this point the clergyman entered the school to give the religious instruction, and thus the head master was set free to show me over the gardens.

Geistingen is an ancient and pretty village, situated in a hollow of the hills on the south side of the Valley of the River Sieg, a tributary of the Lower Rhine. The houses are grouped round a large Romanesque church, the older ones built with black timber frames and embowered in fruit trees, each a mass of blossom at the time of my visit. The inhabitants number about fourteen hundred. In the neighbourhood there are large and substantial farm-houses.

About sixty years ago, certain home industries were carried

on in the village. Besides making wine, the villagers used to weave cotton in their own houses. At the present time no wine is made, and the apparatus for making it is mouldering away in many of the houses. It pays better to grow grapes for the table than for vintage, and the weaving industry, following the well-known law, has concentrated itself at Crefeld, and hence the looms are silent in the village. The villagers, however, have another resource, for there has sprung up an important factory for making agricultural implements. The wages of the workmen amount to eight shillings a day, and the youths who, after leaving the day school, are obliged, if they work in the factory, to attend a continuation school, get not less than four shillings a day.

When the master began his work in the village some twelve years ago, fruit culture was at a low ebb. Old trees were decaying and were either not replaced at all by new ones, or else by trees of inferior quality. Thanks largely to the example of the master, who has co-operated with the local chamber of agriculture, the villagers have now taken to fruit growing as an important subsidiary industry. They spend much of their leisure time in their gardens, and they save much money, which they invest in co-operative societies for building houses and other purposes. They do not invest it in buying land, which is now very costly.

The school garden consists of the plot of ground which is provided for the head teacher along with a residence. In all rural schools in Prussia a house and garden are provided for the head master, and, according to present regulations, the older boys in rural schools must all learn gardening, or rather the cultivation of fruit trees.

The head master of the school at Geistingen has an exceptionally good knowledge of both the theory and practice of growing fruit and vegetables.

The soil of the garden is a rich loam, which is easily worked. The land slopes somewhat steeply from east to west. There are many kinds of fruit trees, both standard and espalier, including some of the best from France, America, Belgium, and England, besides, of course, Germany. There were also many named varieties of vegetables, among which were various sorts of peas, scarlet runners, cabbages, lettuces, and broad beans. It appears that a dish of broad beans and bacon, so common in England, is rare in Germany except in this locality. There were many standard roses, a few garden flowers, especially some fine auriculas, and a few strawberry beds. Currants, gooseberries, and raspberries had each a place assigned to them, and there were two or three beds of asparagus. At the end of the garden a semicircle of fir trees was planted to form a shelter. The frost in winter is apt to be severe, and last February the thermometer sank to 15° R. below zero, and much injury was done. In this garden the boys learn all the usual gardening operations, and what are the best kinds of fruit and vegetables to grow in their village. They also learn the art

of grafting and budding. The walls of the school-house were covered with apples, pears, cherries and other trees, and the boys were expressly taught how to turn wall space to good account.

The time-table of the school contains the usual subjects, namely, German language (speaking correctly, reading, and composition), arithmetic, geography, history, and natural science. Besides this, there is drawing, music, and drill. The theoretical study of plant life is given during the time allowed for natural science, which amounts to four lessons a week. In the winter time, when the plants are not growing, time is spent in studying the effects of insect pests on wood, bud, and on root and fruit. The instruction is given orally by the master, but the readers contain a good many lessons which bear upon fruit and flowers, and their insect friends and foes.

The master informed me that he had taken advantage of instruction in horticulture which had been supplied by the local Chamber of Agriculture, and that with the aid of pecuniary assistance from the Government he had also attended short courses both in the early summer and autumn in the famous horticultural establishment at Geisenheim on the Rhine. The summer course lasts three weeks, and the later course one week.

At the present time the Prussian Government has established by law throughout the country both district chambers of agriculture and agricultural schools, where the sons of peasants can learn what is necessary for them to know. For an introductory knowledge, the local agricultural schools are useful; while for advanced study, courses at Geisenheim and elsewhere are open to teachers.

Not long ago the head master of Geistingen school had given a paper at a teachers' conference, in which he explained his principles and his practice.

He maintained in this paper, which he gave me to read, that his object was educative and not utilitarian. He wished to train up a peasantry who would be able to think as well as to act. He contended that in these days to stand still was to go back, and that a blind practice of the routine of their fathers only led to pecuniary loss. He held that the study of plant life, besides affording practice in observation, experiment, and in drawing inferences, also threw much light on the human organism, and that the children would learn the need of air and light and sunshine, and sleep and cleanliness, and understand the danger of excess and defect in these matters. He believed that the combination of work in school with garden work out of doors led the boys to a far clearer understanding of the first principles of science than merely reading about them in books and learning them off by heart.

Certainly an inspection of the school readers confirmed the opinion of the head teacher that the children's memories had been

formerly overtaxed. There were two of them, both closely printed on poor paper, and in rather small type. One reader contained 337 pages, and included chapters on history, geography, natural history, natural philosophy, physiology, and chemistry. The other reader contained 600 pages, and, besides chapters on literature, formed an encyclopædia of general information.

The boys worked in the gardens in the afternoon and at other times when convenient. They did not spend less time than formerly over their books, but they made better use of their time.

The school consisted of only some 150 children. There were three teachers, all trained and certificated, one of whom, the teacher of the younger children, was a mistress.

As the master accompanied me to the station, he pointed out various cottage gardens which showed by the superior condition of their fruit trees and young vegetables how considerable was the effect of his teaching. "But after all," he said, "it is not so much the amount of information or skill that I may impart which counts with me, as the spirit which I have succeeded in arousing among the boys, and the happiness which I have introduced into their lives. Such is the foundation I am satisfied with laying, and on this in their after life they will be able to build with success. In the end the result of the work which is done in any school will depend upon the individual methods of the teacher."

"Of late years," he continued, "the teachers have been allowed a considerable amount of freedom in devising and executing their plan of work. Of this freedom I have taken full advantage, and if I have curtailed the memory work I am more than satisfied with the result of introducing practical work in its stead, and I find that the parents who used to look upon school as so much waste of time, which their children had better spend in earning money, now begin to show a more friendly spirit towards the school, and are ready to co-operate with me in encouraging the boys to work in their gardens at home. The children also communicate to their parents some of the hints which they have derived from me."

As regards the science teaching in his training college, the master assured me that he had derived but little benefit from it, because it was all memory work, and had been learnt by rote from books.

It must not be supposed, of course, that all the school gardens in Prussia are as well organised as this one at Geistingen. The Government issue general regulations that in all rural schools gardening shall be pursued, but some of the teachers are unable to deal with the subject successfully, either through age or inexperience. In these cases allowance is made. The parish authorities assist the master by supplying him with road scrapings, and also a certain amount of manure.

2. Syllabus of a Course of Instruction illustrating the Practical Work in the School Garden at Geistingen.

The following syllabus shows the nature of the instruction which was given in the school, to illustrate and explain the practical work in the garden. The children were divided, as is usual in German elementary schools, into three divisions—namely, a lower, an intermediate, and an upper. In the lower division no special syllabus was arranged. The course of instruction in the two other divisions extended over two years.

Course of Instruction in Natural History for Country Schools.

Middle Division.

First Year.

Lark, sparrow.
Cockchafer.
Snowdrop and violet.
Swallow, titmouse, and nightingale.
Flowering fruit trees and bees.
Robin and hedgesparrow.
Poisonous crowfoot and nightshade.
Poisonous mushrooms.
Water wagtail, thrush.
Rye, wheat, oats, barley.
Potato.
Hare and rabbit.
Beans, peas, and clover.
Hedgehog, bat, mole.
Hen, pigeon, duck, birds in winter.
Dog, cat, mouse.
Ox, goat, pig, sheep, horse, ass.

Second Year.

Starling, wren, cuckoo.
Rose, forget-me-not.
Cabbage—butterfly and caterpillar.
Poppy.
Wasp, hornet, ant.
Corncockle, foxglove.
Turnip-fly and blue-bottle.
Worms, ladybird.
Turnip, carrot, cabbage, onion.
Crow, owl.
Herring.
Shrew mouse, squirrel, weasel.
Oak, fir, beech.

Upper Division.

First Year.

The parts of a plant:
- Root, stem, leaf, buds, flowers, fruit, seeds.
- The nature of each part of a plant and how it acts.
- Absorption and transpiration. Leafgreen.
- Effect of light and warmth.
- Food of plants. How derived from the soil. The Cambium layer. The annual rings.
- Food of plants—(1) gaseous: oxygen, hydrogen, nitrogen, carbon dioxide; (2) mineral: sulphur, phosphorus, calcium, potassium, iron.
- How plants supply animals with food.
- Supply of matter to plants for food by stable manure, compost, wood-ash, artificial manure, and diluent substances such as lime.
- Effect of climate on plants.
- Water—water in the ground; how plants absorb water.
- Seeds and cuttings.
- Rich and poor soils; improvement of poor soils.
- Clay, peat, lime, loam, sand, mixed soils.
- Simple analysis of soil.
- Manuring, humus, irrigation.
- Fruit trees and their improvement.
- The parts of a fruit tree.
- The wild stock and its treatment.
- The chief kinds of improved fruits.
- Grafting—crown grafting, etc., budding.
- Improvements of stone fruit, gooseberries and roses.
- Treatment of young trees in their nursery.
- Treatment of berries, viz., gooseberry, raspberry, strawberry, currants.
- The vine and its treatment.
- The hazelnut.
- Espaliers—special attention to the walls of the schoolhouse.
- Choice of sorts, according to aspect, soil, temperature, rainfall, and altitude.
- Care of fruit trees.
- Planting fruit trees. Trimming root and crown.
- Watering. Support.
- Attention needed during the first year after planting.
- Renovating fruit trees.
- Diseases of fruit trees; insect pests and remedies.
- Mildew, canker, moss, gum.
- Injury from hail, snow, hares, rabbits, and various birds and insects—starlings, beetles, codling moth, wasps, spiders, woodlouse, onionfly, etc.
- Ripening of fruit.
- Sorting and storing fruit.

Second Year.

The vegetable garden:—

Division of the ground.
Trenching and manuring.
Sowing seed.
Planting, watering, weeding.
Forking, hoeing.
The hotbed.
Various kinds of cabbage, cauliflower, broccoli.
Lettuce and endive. Radish, spinach.
Carrots, turnips, onions, celery.
Beans, peas, scarlet runners, asparagus.
Preserving vegetables.

Field crops:—

Preparing the ground.
Ploughing, harrowing, rolling.
Wheat, rye, oats, barley, potatoes, beetroot, vetch, clovers.
Grasses for pasture.
Weeds in garden and pasture and their removal.
Necessity for manuring pastures and tilth.
The enemies of plants and their destruction.
Moles, fieldmice, centipedes.
The friends of plants—bees, hedgehog, ladybird.

The master by no means taught all the details which are included in the above syllabus. It was a source of satisfaction to him that while the syllabus was a guide to him in his work, he was not tied down to the letter of it. He was at liberty to omit and to add at discretion. He found time, for example, to give lessons on the laws of health affecting both man and beast.

3. A Brief Survey of the History and Present State of School Gardens in Germany.

The introduction of gardening into the course of instruction in elementary schools is no new movement.

In 1814 instructions were issued in Schleswig-Holstein to the effect that "in view of the future occupations of children in country schools, most of whom will be engaged in agricultural pursuits, they should in addition to their ordinary work receive some instruction in the culture of fruit and vegetables."

In 1817, in Nassau, instructions were issued to the effect that a garden should be provided for every village school besides a playground, in which the children should receive practical instruction in fruit culture. The district school inspectors have paid attention to this subject more or less ever since, and in 1885 special organisers of school gardens were appointed to inspect and advise the work

in the school garden. The Wiesbaden Agricultural Society encourages school gardens by offering prizes for the successful cultivation of fruit. Care is taken that the work in the school gardens does not enter into competition with local fruit growers, the number of trees being limited to the quantity which is needed for instruction.

School gardens are, however, by no means universal. Among the most successful are those at Langenhain, near Eppstein, Eschhorn, Hilchert, Alsbach, and Kaden, near Westerburg.

In 1819, in Prussia, instructions were issued that the course of studies in village schools should include some instruction bearing on agricultural subjects.

The instruction has not been universally carried out, but it has been attended to in various places, according to the interest which the school authorities and their school inspectors have taken in the subject. At Köslin no teacher is appointed to a head-mastership unless he has a sufficient practical knowledge of fruit culture. At Oppeln, the regulations dated 1867 provide for instruction in fruit culture, and also those for Lauenburg, dated 1868.

In the regulations for elementary schools in East and West Prussia, dated 1845, and still valid, provision is made for supplying the teacher with a fruit garden. In Königsberg the size of the garden is prescribed to be forty-five square rods, and the school inspector is entrusted with the duty of seeing that it is properly cultivated. The instruction is to be in growing fruit, and not vegetables. There are a great many schools in this neighbourhood where the school fruit garden is more or less a success.

In Mecklenburg-Schwerin, regulations in respect of fruit gardens were made first in 1827. All village schools were to be provided with them. In 1832 the size was fixed by regulation to be fifty square rods. In 1846 the provision of this instruction was left to the discretion of the teacher. At present the school garden is the exception and not the rule.

In Bavaria school gardens do not form a part of the obligatory programme, but the Government encourages them, and the school inspectors are instructed to report upon their progress.

In the Upper Palatinate at the present time the regulations provide that each country school shall be provided with a fruit garden of at least fifty square rods. The local chamber of agriculture supervises the school gardens through members of its committees, and assists the teachers. A special scheme of instruction is drawn up and preserved for the use of the district inspector, who reports upon the results. Every effort is made to interest all persons who are concerned with fruit growing, whether in an official or private capacity, in the work of the school gardens.

It will be noticed that many of the school gardens in Germany are confined to fruit growing.

The combination of the practice and theory of growing vegetables,

flowers, and fruit is common in Austria. The first garden of this kind to be found in Prussia dates from 1881. This was the work of Herr Schommertz, the teacher of the school in Gerderath, in the Rhine Province. He was encouraged in the work by the district school inspector and the school authorities. The parish contributed £20 towards starting the garden, the expense of which was afterwards borne by the Aachen Arts and Industries Association.

The subject of school gardens from the year 1882 onwards has formed a frequent topic for debate at the periodic conferences of teachers. At one of these, held in 1886, Herr Schommertz submitted his scholars to an examination before the members of the conference to show (1) how he connected his theoretical instruction with practical studies in fruit growing, and (2) how he connected this garden work with the other subjects which formed part of the usual course.

The first part of the examination showed what the boys could answer about:—

(1) Diseases of trees—gum, canker, blight, mould, etc.
(2) Noxious insects affecting (*a*) roots, stem, twigs and boughs, leaves, flowers, fruit; (*b*) bush fruit; (*c*) vegetables; and modes of combatting these attacks.

The second part of the examination displayed the following knowledge connecting the garden with the other work:—

(*a*) Natural Science:—

(1) Classification of the plants in the garden.
(2) The names of all the plants and their use.

(*b*) Arithmetic:—

(1) Estimate of the cost of producing a crop in one of the beds from sowing to marketing.
(2) Estimate of the amount of water draining away from the garden in twenty-four hours.
(3) Calculation of the height of a tree from the measurement of its shadow.

(*c*) Drawing:—

(1) Freehand drawing of leaves of plants from nature.
(2) Plan of a part of the garden drawn to scale from measurement on the spot.
(3) Perspective drawing of the beehives and stand.

(*d*) Geometry:—

(1) Calculation of the area of a circular portion of the garden.
(2) Laying out a rectangular bed of given dimensions.
(3) Measurement of the slope of the garden.
(4) Calculation of the quantity of water contained in a cylindrical basin in the garden.

(*e*) Practical knowledge of gardening :—

(1) Treatment of a garden bed.
(2) Treatment of a manure heap.
(3) Exposition of practical experiments as follows :—

(*a*) With nineteen different kinds of grasses.
(*b*) With several different kinds of potatoes, and same potatoes differently planted.
(*c*) With "Triumph" oats in respect of (1) deep cultivation, (2) different manures.

(*f*) Fruit trees :—

(1) Grafting, budding.
(2) Planting a fruit tree.
(3) Treatment of the bark.
(4) Summer pruning of a pyramid tree.

Saxony.

Owing to the influence of Dr. Lotz school gardens of the more comprehensive type have been spreading in certain parts of Saxony. Dr. Lotz commenced a school garden in Neustadt, near Coburg, in the year 1885. The school was a large one.

The area was two roods and a half. It was divided by paths, a yard wide, into six large rectangular beds. The two northern beds contain a nursery for fruit trees and seedlings, vines, and a few ornamental shrubs. This part of the garden is worked by the boys of the first class, under the guidance of their teacher.

The remaining four beds are subdivided into from fifty to sixty beds, each in charge of a scholar, the girls as well as the boys each having a garden bed. The gardening is carried on during the school hours.

The procedure is as follows :—

A row of ten to a dozen boys or girls dig the ground and break the clods, a similar row rakes the surface even, a third row weeds the ground, keeps the paths clean, removes stones, etc., to a proper place. Each class has about 150 square yards, and when the surface has been thus duly got in order the children, under the guidance of their teacher, draw out in class a number of beds of various patterns—rectangular, polygonal, and elliptical—in number from fifty to sixty, one for each child, as required. These are subsequently staked out in the garden, and each child takes possession of one for the season, cultivating it according to his or her individual taste for vegetables and flowers. In the middle the teacher has a model bed for the guidance of the children, but individual tastes are encouraged.

In all parts of the Duchy of Coburg school gardens of various kinds are plentiful, both in elementary and secondary schools.

In 1895 Dr. Lotz moved to Pössneck. He has established there the largest school garden in Thuringia. It contains 33 acres. About a tenth of this space is devoted to trees and shrubs, and also to a botanical section, including (*a*) poisonous plants, (*b*) medicinal plants, (*c*) grain crops, (*d*) kitchen vegetables, (*e*) annuals and biennials for the flower garden, (*f*) bog and heath plants. The rest of the space is divided into small plots for individual scholars, some 600 in number, and a section for roses and fruit trees. The town contributed a sum of £125 for the first outlay, and grants £15 towards annual maintenance.

At Altenburg since 1886 there has been established a school garden for a large girls' school.

There are also school gardens of more or less importance at Schmölln, Ronneburg, Gera, and Jena.

4. School Gardens in Connection with Continuation Schools.

In Prussia the organisation of continuation schools in country districts was handed over in the year 1895 to the Minister of Agriculture and Woods and Forests. Before that it had been under the care of the Minister of Public Instruction.

The chief defect of the old plan was that the studies in the continuation schools were a mere repetition of the work of the day schools, which disgusted the students and failed to secure the interest of their parents.

In the year 1897 the Minister of Agriculture presented a Memorandum on the growth and present condition of continuation schools in the country districts of Prussia, and as a result a set of joint regulations was issued on behalf of the Minister of Agriculture and the Minister of Public Instruction.

According to this, in drawing up a plan of study for country continuation schools, care must be taken (1) to preserve continuity between the instruction there given and the work of the elementary day school, and (2) not to endanger the character of the school as a place of general training, and (3) to connect the course of studies with the practical requirements of the students in their daily occupations. It is pointed out that studies in German, viz., reading and composition, in arithmetic and mensuration, and in natural science, can all be made to bear upon the pursuits of those who are living and working in country districts. What is needed is a general training in the substance of which special attention shall be paid to practical experiments with soils, fruit trees, vegetables, and grain or grass. Bee-keeping and studies of insect pests are also encouraged. The instruction, however, is by no means to be professional, but the completion and extension of the day school course, leading up to a better understanding of the principles of plant and animal

life and power to enter into the meaning of books and periodicals bearing on agricultural pursuits.

Mention is made of the difficulty of finding suitable teachers in country districts. The most feasible plan has proved to be that of encouraging teachers in rural schools to attend special courses at farm schools, as, for instance, that at Weilburg, and also the courses in fruit culture, which are provided in almost all the provinces. At Oppeln a special organisation has been attempted. Here a peripatetic teacher in agriculture—a specialist—has been appointed to visit each of a group of six villages which combine for the purpose, on one evening in the week, in order to give instruction, of two hours' duration, according to a specified syllabus. In each of these villages the village schoolmaster gives on one other evening in the week instruction of two hours' duration of a general nature, in which, however, the special knowledge required by people who work in the country is borne in mind. The instruction is given throughout the winter, and is gratuitous.

The special instruction in agriculture deals with the food of plants, manures, seeds, the treatment of the principal crops and vegetables. The general instruction includes natural science and the principles of agriculture, together with arithmetic and German. The instructions point out that as school gardens become more common it should be possible to introduce more practical illustration than has hitherto been found feasible.

(See Denkschrift des Landwirtschaftsministers, 1897, über die Entwickelung und den Stand der ländlichen Fortbildungsschulen in Preussen in Jahre 1896-97.)

5. Provision of Instruction in Gardening for Teachers in Elementary Schools.

The regulations provide for instruction in gardening and fruit culture in the training colleges. Such regulations were made in 1872 and existed earlier. The regulations are carried out with varying degrees of success. One of the best schemes (dated 1878) is that of the training college in Pomerania. Here, in addition to the usual theoretical instruction, the following practical work is carried out by the students. (1) General garden work, viz., trenching, manuring, hoeing, etc. (2) Fruit trees, pruning, grafting, budding. (3) Vegetables, seeds. Each student has to raise five sorts each year according to a plan. Treatment of a hot-bed of strawberries and asparagus. (4) Flowers, including window gardening. (5) Ornamental shrubs: making and trimming hedges, keeping lawns.

In Westphalia a similar scheme was established at the Münster Training College in 1880.

In some of the training colleges the garden has tended to become a means for illustrating studies in botany rather than gardening.

At Weissenfels the training college has been in possession of a garden since 1837, and here as well as at Alfeld, in Hanover, theoretical and practical instruction is given.

Most of the training colleges in Saxony are provided with gardens.

In Thuringia there are gardens at the training colleges in Coburg, Gotha, Greiss and Rudolstadt. At Greiss the students spend some hours a week in the culture of fruit trees.

In Würtemberg there is a garden in connection with the college, in which the students receive instruction from the teachers of natural science.

In Baden the training college at Meersburg, and in Hesse the colleges at Friedberg and Alzey, all have gardens.

The next important aid to practical gardening is to be found in the short courses for teachers which have been provided in connection with the horticultural establishments and the agricultural schools and winter courses.

In Prussia, as has been already shown, according to regulations issued in 1874, teachers in schools and training colleges are invited to attend courses in gardening and fruit culture in suitable centres. For several years past such courses have been given at the Government institutions of Proskau, near Oppeln, and Geisenheim, the expenses being paid for out of funds provided by the Ministers of Agriculture and Public Instruction. Similar courses have been given at Cassel, in the Pomological Institute at Bitburg, near Trier, in the various farm schools, and also at Weilburg, Crefeld, Hanover, and Bonn. The teachers who attend these courses receive from Public Funds a contribution which nearly covers their expenses.

In the year 1896 there were in Prussia in all twenty-one such courses attended by 258 teachers. The courses consist of a spring and summer section, about three weeks in the earlier and ten days or a fortnight in the latter.

6. A Visit to the Elementary School at Oelsberg, in the Valley of the Ruhr.

The next school garden which I visited was at Oelsberg. Oelsberg is a pretty village some twenty miles higher up the River Ruhr than Arnsberg, in Westphalia.

It is surrounded by well-wooded hills, the lower slopes of which are well cultivated. The river wanders through green meadows. In the summer many patients from the Kneipe Kur in the village come to walk up and down barefoot in the watery grass. A prettier spot for a Kur it is hard to find, or a healthier. There are a few industries in the village. There is a factory for making iron smallware, such as dishes and saucepans, and also furniture and cabinet making. There is prosperity in the aspect of the place.

The schoolmaster has charge of a school of 240 children. In the upper division there are sixty boys and as many girls. He has

charge of the boys, while a mistress takes the girls. The middle division consists of seventy children, under one master, and the younger children, numbering over 100, are taught by a mistress, who takes half of them in the early part of the morning, and then, dismissing these to make room, takes the other half for the rest of the time.

The master has taught the boys the theory and practice of growing fruit trees for the last twenty-five years. On all hands it is recognised that owing to his teaching, the fruit gardens have been wonderfully improved in the neighbourhood. When he began his work the fruit trees were neglected, and were replaced, if at all, by bad sorts. At the present time the master, besides teaching his own boys, has the superintendence of fifty other schools in the neighbourhood. These he visits chiefly during his holidays, and gives advice. Once in three years he issues a report on their condition to the educational authority at Arnsburg.

The master's salary is £130 a year, besides a house and garden. For inspecting the other schools he gets £10 a year in addition; most of them can be visited on foot or by a short railway journey, so that his travelling expenses are small.

The subjects studied by the boys in the master's class are as follows:—

Religious Instruction	5½	hours.
German	8	,,
Arithmetic and Geometry	5½	,,
History and Geography, Natural Science	5	,,
Drawing	2	,,
Singing	2	,,
Drill	2	,,

The hours are from 8 to 12 in the morning and from 1.30 to 3.30 in the afternoon.

Some of the practical work in connection with the fruit growing is done in the class-room. The boys are told to bring suitable shoots and stocks, and they learn to make various grafts and buds in the room. Later they perform actual work of this kind out of doors in a nursery provided for the purpose. Near the school the parish has given a sheltered slope, about an acre, rent free. The master buys the young fruit trees, wild stock, etc., and manure, which, owing to the local system of sanitation, is easily obtainable. The boys in this school learn nothing of vegetable gardening. The garden contained a large number of young fruit trees in various stages, viz., young stocks, stocks which the boys have grafted, and standard trees, with their crowns properly formed and ready for transplanting. A large section had just been sold off and was cleared. The sorts are such as the master has found by long experience to be best suited to the locality which, being fairly high up, requires sturdy trees. The village is too high up for the culture

of the vine. The trees which grow best are apples and pears, and a demand for cherries is growing. Peaches and apricots will not ripen. The demand for the master's trees is so great that the parish is providing a larger plot of ground. The boys leave school at fourteen, and there is no continuation school in the village.

The master said that he had acquired his skill in gardening from his father and from practice. The subject he said was taught at the training college, but he derived little or no practical advantage from the instruction which was given there. Some of the teachers of the schools which he inspects attend short courses at certain horticultural establishments, such as that at Geisenheim. The expense of the course is partly paid by the parish, and partly by the Government, and partly by the teachers themselves. The total cost need not exceed £5, and there is included in that, besides good living, some amusement, especially in the way of expeditions.

The master said that the local agricultural classes were more concerned with farming than fruit-growing, and therefore teachers could not learn so much from them as by attending the other courses described. During their absence from school while attending such classes the school authorities usually manage to send a teacher on supply.

7. The Views of Mr. Plett, the Headmaster of the Oelsberg School, upon the Theory and Practice of Gardening for Elementary Schools.

The master, Mr. Plett, of Oelsberg, had drawn up a plan of instruction in fruit-growing for elementary schools to the following effect:—

(1) *General Observations.*

In the year 1880 the Prussian Government called upon all teachers in the country districts to unite with other authorities in promoting fruit culture, and success or failure was to be noted in the annual report. It seemed both to the fruit growers' associations as well as to the Government that the teachers had special opportunities for encouraging fruit-growing among their scholars, for awakening a more general interest in the subject, and for spreading a sound knowledge of the best methods in country districts.

Instruction in fruit-growing, writes Mr. Plett, has both an educational and an economic value. It awakens a pleasure in Nature; it teaches the need of order, gentleness, and neatness, and it stimulates physical activity. It is not without a moral effect. It teaches boys to respect other people's handiwork and property. It substitutes useful occupation for mischievous idleness. Teachers need not fear that they will not succeed if they attempt fruit-

growing. A little energy and determination will supply all that is needed, and the pleasure in the craft grows with its pursuit.

(2) *The School Garden.*

The garden should be sheltered from the prevailing winds and from storms. It should be fenced in with a hedge at least four or five feet high, and means should be taken, if required, to keep out hares and rabbits. It should have a sunny aspect, and the soil should be as deep and good as possible. In size it should be not less than 200 square yards. There should be at least ten square yards for seedlings; twenty square yards for wild stock—*i.e.*, 200 stocks at a distance of about a foot apart.

Eighty square yards are needed for 200 improved stocks about two feet apart. There should be a reserve bed of about ninety square yards.

(3) *The Scope of the Instruction in Fruit-growing.*

The plan of instruction should contain what is most essential, viz. :—The kinds of fruit best suited to the locality, the planting of fruit trees, grafting and budding, and forming standards and espaliers.

The boys should also learn, besides planting and tending the trees, how to destroy the insect pests and other enemies, how to deal with the diseases of trees, and the storing of fruit. This should be the first course, and the training of cordons and shaping trees should follow.

(4) *The Instruction should be both Theoretical and Practical.*

1. Theoretical Instruction :—
   - (*a*) Exposition of the subject and demonstrations by the teacher.
   - (*b*) Questioning and explanation.
   - (*c*) Appropriate reading.
   - (*d*) Oral reproduction and recapitulation under the guidance of the teacher of what has been learnt by the scholars.
   - (*e*) Written exercises.

The written exercises should be such as follows :—" On the improvement of fruit trees "; " On planting fruit trees "; " The care of fruit trees "; " The diseases of fruit trees and their remedies "; " On the enemies of fruit trees," etc.

There is no branch of instruction, continues Mr. Plett, which lends itself so thoroughly to treatment through object studies. There are the young fruit trees in the garden for the children to watch and tend. Child and tree grow together, and in no branch of study is there less need for the teacher to substitute in his lessons

information of his own for observation and first-hand knowledge on the part of the child. If once the boy has learnt to take an intelligent interest in some special portion of the world of nature, and of outdoor life, his education is proceeding on sound lines. Such an interest it is for the school to awaken, and there is no better means than instruction in fruit-growing.

2. Practical Instruction.—The teacher must, however, by no means confine himself to theoretical instruction. He must introduce the boys to corresponding practical work outside in the garden in the free air. Here the boys must learn to carry on with their own hands what they have learnt in the class-room. It is true that the efforts of the boys will not all be attended with equal success, and occasionally a tree will be injured by clumsy manipulation; but such accidents are unavoidable, and omelettes cannot be made without breaking eggs. The master hand is acquired, and is not a birthright.

On a fine afternoon in March or April the master takes his older boys into the garden. The scholars stand round the master in a half-circle. The master then performs and explains different kinds of grafting and budding. Then the boys each attempt one kind. The master then criticises each performance in the presence of all the boys, and in case of defect shows how it may be improved. Gradually, as the boys acquire dexterity and knowledge, they may be entrusted more and more with work in the fruit garden.

If the teacher wishes to demonstrate the planting of a fruit tree he takes his older scholars to the garden of a neighbour who has purchased a young tree, with a view to showing the boys how to plant it. As before, the boys stand round the spot in a half circle, while the master explains the size of the hole to be dug, the nature and treatment of the soil, the prop, the trimming the roots, and the planting in the earth. After this the scholars proceed to plant trees for themselves under guidance from the teacher.

In the same way the master deals with the trimming of the crown, the cleaning of the tree, and the manuring it. Mere telling the boys effects little. They must carry out the work with their own hands. The boy who works with his own hands works with pleasure and zeal. What a source of satisfaction it is when a boy finds that his graft, that is a graft which he has made, has succeeded, and with what pleasure he watches the further development of "his" tree. Therefore, give the boy a knife, and, under the guidance of the master, let him use it freely for grafting and pruning.

After leaving school a boy will not easily lose his interest or his skill in fruit-growing if he has the opportunity, as a country lad probably has, of keeping them up.

The teacher will show the boys how to select sorts that are suitable to the locality and why they are so, and how to shape the crown of the tree, and how the stem must gradually decrease in

size as it grows upwards, and how the roots and the crown should be properly developed. Neglect of care in planting and setting the young trees is the cause of much failure in cottage gardens, and great stress should be laid on this in schools. The care of trees must be carefully practised. Moss, caterpillars, and dead wood must be removed by the boys.

In order to encourage useful birds, the boys should make and hang up boxes in the trees for birds to nest in which are friends to fruit trees. The boys are delighted when they see their boxes occupied by starlings, titmice, and other birds that nest in hollow trees. These boys will not be of those who destroy birds' nests or are cruel to animals. They will rather protect the birds as their best allies in keeping down injurious insects.

The example of the teacher and his scholars in course of time produces an excellent effect on the neighbourhood, and many a lazy person, stimulated by what he sees done by others, will be prompted to undertake fruit growing on his own account.

(5) *Arrangement of the Work.*

January—

Cleaning fruit trees from moss and old bark; lime-washing; cutting away dry wood in the crown, and removal of unnecessary branches. Covering the wounds with proper wax (in place of tar, which is injurious). Cutting and storing scions of good sorts.

February—

Spring pruning. Destruction of enemies of fruit trees.

March—

Complete the work of the preceding month. Planting fruit trees. Preparing hole. Trimming roots: Prop, planting in soil, binding to prop.

April—

Improving stock by various grafts, tongue grafts, crown grafts, etc. Budding, shaping the crown of the young fruit tree.

May—

Complete the work of April. Watering fruit trees.

June—

Diseases of fruit trees. Injury from frost. Canker. Blight.

July—

Diseases. Gum. Sterility.

August—

Inoculating fruit trees.

From April to the end of August attention must be paid to weeding and keeping the soil clean.

September and October—

Gathering and storing fruit. Study of fruits which are suited to the climate of the school.

November—

Manuring the soil. Preparing ground for spring planting. Cleaning fruit trees.

December—

Study of the soil, climate, and situation of the fruit garden. Protection against frosts and noxious insects.

8. School Gardens in Town Schools. A Visit to Plauen Higher Grade School, near Dresden, Etc.

So far, my observations on school gardens in Germany have related to rural schools. In order to show that work of this kind is not confined to the country districts, and that in town schools also gardening has been introduced with much good effect, I will next describe my visit to a higher elementary school at Plauen, near Dresden. Plauen is a large and populous suburb. The Bürgerschule, or higher grade school, is spacious, convenient for teaching, and admirably equipped.

The school garden is like a small park. The aim of it is to illustrate all the natural history that is taught in the science lessons. Hence three sections—(1) growing plants, viz., (*a*) flowers, (*b*) vegetables, (*c*) field crops, each in small quantity, but planted and tended each bed by a separate class, (*d*) fruit garden—with examples of grafts and cordons. (2) Rockery. Here the rocks and soil were arranged to show the geological structure of the neighbourhood. (3) A small plantation consisting of specimens of some of the trees which grow in the vicinity, especially various sorts of firs, pines, larch, etc.

The garden is large, The town has given the teacher about an acre on the sunny side of the school buildings.

The fruit garden contained about 200 square yards. It was arranged as follows:—Near the path were cordons, trained on wire; in the next rank were pyramids, and behind these there were standard trees of taller size. Apples, pears, cherries, medlars, and walnuts were among the commonest. On a sunny wall in this part of the ground were apricots and peaches. Gooseberries and currants found a place between the other trees.

In another part of the ground were several small beds about seven yards long and one and a half wide, in which were planted all sorts of vegetables, lettuce, cabbage, beans, etc., and pot herbs of many kinds, all for use in the cooking school.

There were also beds in which were planted seeds of wheat, barley, and maize, besides grass and clover; and also a bed containing

many of the common weeds which grow in pastures. Flax, poppies, and tobacco also found a place. Certain plants were chosen to illustrate special characteristics, such as the contrivances for fructification, the relation of insects to flowers, and so forth. In the middle of this part of the garden were a few beds to show the commoner kinds of ornamental flowers in constant succession. This bed was full of beautiful tulips in full bloom when I visited the garden. One of the prettiest features was the collection of trees that grow in local woods—beeches, birches, oaks, pines, firs, and among them wild roses and other wild plants.

The cost of maintaining the garden is but small, because all the work done is by the children, who bring seeds and other plants as needed, and plant them under the guidance of the class teachers. Each class takes charge of certain beds. In the trees are placed boxes for the birds to nest in, and the children also feed the birds on the spacious lawn.

This garden is of a different type from the gardens in the country schools, and has a different object. Here the purpose is not so much to teach the actual cultivation of the soil, or to grow fruit, as to show the children, both girls and boys, how to tend a garden and to give them a pleasure in nature. The purpose is to give reality to the science lessons in the classroom. The old way of merely dissecting flowers in the schoolroom has given place by means of this garden to the actual study of growing plants. The insects have been watched at their work in fertilising flowers. The book learning has been connected with living things, and has gained life from the connection. Then, again, the drawing has profited, because the children, when they study a flower with a view to drawing it, can watch its habit and mode of growth, and are not so likely in conventionalising a flower for the purpose of design to violate the law of its growth. Pains are taken to keep the study of natural objects in the school in close touch with the school garden.

This school is of the advanced elementary type. There are about 500 boys and as many girls. They enter the school at six years and leave it at fourteen, after an eight years' course. The school is divided into thirty classes, namely, fifteen classes of boys and fifteen of girls. The average number in a class is about thirty-five.

There are twenty-eight teachers, of whom nineteen are fully certificated, two are provisionally certificated, three are assistants, two teach needlework, and one teaches cookery. The subjects taught besides Scripture, German, arithmetic, geometry, natural history, natural science (physics), geography and history, are drawing, singing, gymnastics (there is a fine gymnasium, also used as an assembly-room), needlework, cookery, and manual training (cardboard and woodwork). Either French or English is taught to most of the children. Opportunity is offered to the older boys and girls of learning shorthand.

The fee charged for the older scholars is about £2 a year. On leaving, all boys are obliged to attend a continuation school until they are seventeen years of age. There is no fee for the continuation school.

The director, Herr Wilsdorf, who has designed and carried out this school garden, speaks enthusiastically of its results, and frequently advocates its wider adoption on the occasions when he attends the conferences of teachers which are held periodically according to the regulations which prevail throughout Germany. At present there are comparatively few school gardens in the kingdom of Saxony, but Herr Wilsdorf is hopeful for their future extension.

At another large elementary school near Lohtau, a suburb of Dresden, where there are 2,800 boys and 1,670 girls, there is a still more elaborate school garden of this type.

General Description of Site.

The playground is rectangular, and a strip of land around three sides of it has been cultivated. The total length of the strip is about 150 yards, with a width of six yards, or about 900 square yards of ground. The soil is rather too stiff for easy cultivation, and is being gradually improved by mixing more sand. The work is carried out by the children under the guidance of three of the teachers, aided by a gardener from the public gardens.

Divisions of the Garden.

The first section forms an introduction to the study of the wild plants and trees of the neighbourhood. It is divided into meadow, marsh, heath, and hill, and is intended to illustrate "plant communities" as they arise in natural conditions. The children can learn the habit of each plant in such natural groups, how one depends for its protection upon another, and the effect of the character of the soil and the situation. The plants are not studied merely from a morphological or classificatory point of view as formerly, but in addition the life of the plant and its natural surroundings are studied in connection with each other, so that its structure is studied in life and not merely in dissection. In short, this part of the garden is a "Living primer to the great Book of Nature."

The plants are collected by the children in the course of school expeditions which are made for the purpose. Seeds are gathered in the case of annuals and biennials, while the roots of perennials are transplanted with care to their new home.

In this way the children learn the natural habitat of each plant, and the natural group of which each forms a member. Each plant is carefully labelled, both with the common name and also its scientific name.

In the school-house are hung up for inspection tables showing

the chief details of the plant's structure and growth, its time of flowering, fruiting, etc. Lessons are given on the plants during the time allotted in the time-table to Natural Science and Natural History.

(a) *Trees that grow in the woods*—
Maple, alder, lime, birch, whitethorn, ash, beech, hazel, dog-rose, etc.

Attention is called to the abundance of spring flowers in the woods, which have to finish their flowering before the trees above them are in full leaf and cast a shade over them.

(b) *Shrubs, annuals and biennials*—
Lily of the valley, wood violet, wood sorrel, anemone, lungwort, enchanter's nightshade, golden rod, etc.

A rockwork was made with a steep side and a sloping side. The earth consists of decomposed granite, etc. Here on the sloping side grew the plants of the heath, which protect themselves against evaporation in various ways (small leaf surface, woolly coat, thick leaves, vertical position of leaf, etc.). On the steep and shady side grew ferns.

(c) *Plants that grow on the slopes of hills*—
Hawkweeds, pinks, scabious, devil's bit, mullein.

(d) *Plants that grow on the open heath*—
Genista, heath and ling, bilberries, broom, etc.

(e) *Plants that grow on peat and marshy moors*—
Sundew, cottongrass, marsh mosses, bog myrtle, sedges, bulrush, flag, marsh-marigold, butterwort.

(f) *Plants that grow in or around a pool of water.*

There are three basins, the first very shallow, the second eighteen inches deep, and the third three feet deep. They are connected so that water flows through from the shallowest. The bottom is cemented. Around the edges are forget-me-nots and such plants as grow on the banks of streams. In the tanks grow (1) plants that have only their roots in water, their stem and leaves rising above it; (2) plants with stem and roots below water and floating leaves; (3) plants with stem, leaves and roots under water—water-lily, villarsia, water soldier, frogbit, flowering rush, arrowhead, peppermint, water buttercup, bladderwort, pond weed, horsetail, etc.

The ponds also formed an aquarium for the study of creatures that live in the water—water beetles, snails, freshwater shell-fish, the larvæ of dragonflies, minnows, etc.

Meadow plants—
(1) A collection of grasses. Foxtail, Timothy, etc.

Meadow flowers—
(2) Clover, cranesbill, caraway, fritillary, meadow saffron, etc.

During the collection of such flowers, notice was taken of the insects which visit them, and of various adaptations of their mode of growth to their locality.

The Orchard.

Walnuts, plums, mulberries, apples, pears, gooseberries, raspberries, strawberries.

The Flower Garden.

The garden shows the cultivated forms of certain wild plants, in order to contrast the effect of selection and cultivation. Campanulas, foxgloves, pinks, asters, roses, lobelias, gladiolus, hyacinth, crocus, lilies, etc.

The Kitchen Garden.

The vegetables are raised from seed, and by means of a frame early vegetables are grown with success.

Grown for leaves :—
- Spinach.
- Cabbages.
- Lettuce.
- Endive.
- Cress.

Grown for roots :—
- Carrot.
- Beetroot.
- Radish.

Grown for their foods and beans :—
- Peas and beans of various sorts.

Vegetables grown for their fleshy fruit :—
- Cucumber.
- Melons.
- Tomatoes.

Spices and perfumes and medicines :—
- Dill.
- Lavender.
- Parsley.
- Marjoram.
- Peppermint.
- Balm, etc.

9. Mr. Wilsdorf's Views as to the Moral and Social Advantages of School Gardens in Town Schools.

Herr Wilsdorf's opinion as to the advantages of school gardens is to the following effect :—

Mischief instead of play ; instead of a child's natural amusements (such as roaming in the lanes, and watching birds and beasts and gathering flowers), playing at being a man, smoking cigarettes, and betting on horses ; filling the immature mind with all that is gross

and common instead of leaving it receptive to the enjoyment of the open air and the kindly freshness of nature—such a series of contrasts fairly sums up what to suppress or avoid in training a child.

School life is only one of the many influences which act on the schoolboy. There are also his home, and the life which is led by his parents, the influence of his companions out of school, all that he hears in chance way from grown up people, and all that he reads for himself. Great as is the influence of the school and the teacher, it is a mistake to attribute to these alone all the success or failure of the youth as he grows up.

There is no doubt, however, that the instruction which is given in school has sometimes been too little connected with home life, and that there has even been some opposition between them, so that what has been most regarded as of value in the home has been depreciated and even despised at school, while the lessons in school have often been regarded by parents as possessing little practical value.

There is an opportunity at the present time, such as has never existed before, of knitting together more closely home and school life. This is due to the advance of modern science, and to its application to the common affairs of everyday life in the house and in industry.

An ordinary boy will take much more interest in the explanation of some fact in one of his lessons on natural science if he combines his lesson in school with some practical work in which he can use his hands.

This is equally true of his lessons in geometry and arithmetic. A teacher who is in the habit of thinking out the practical bearing of his lessons derives much benefit both for himself and his scholars.

Partly he finds himself able to omit what is unessential, partly he is able to show his scholars how to find out for themselves details which they may need to know, and partly he is able to seek and find sympathy with the parents by showing them that he wishes to impart living knowledge, and to make their sons useful at home and thoughtful in the exercise of any practical work which they may undertake.

Work in the school garden offers the teacher the opportunity of carrying out this kind of instruction.

More than this—a change is coming over the aims of the teacher of science. The acquisition of so much knowledge of system and classification as can be included in a text-book of science is really becoming to be regarded as so much "examination fodder," having no further value than the attainment of a diploma.

The first step in teaching science is to direct the child to the observation of the life, growth, and habits of living things. It is thought more important than formerly to direct the child's attention to living matter and the slow patient toil which is needed to grow plants with success, or to rear poultry, or to keep bees.

Dealing with dead matter and chemical analysis and mathematical calculation of light, heat, and electricity belong to a later stage.

In a school garden the boy becomes aware, almost imperceptibly, of the conditions of growth of a plant, of its dependence on light, air, warmth, water and soil. He learns to see the relation of the various organs of a plant to each other as a living whole, and the connection between plant and insect life. It is not the dead anatomy of the laboratory that is his first introduction to nature.

The schoolmaster seems no longer to be merely keeping school when he is at work with the boys in the garden, and his wife teaching the girls to cook and sew; he seems to be head of a working family, where, besides reading and arithmetic, the scholars learn to respect work and to perform it, to work together for a common cause, to understand the dependence of one upon another, to be helpful and to be grateful to each other. There arises among fellow labourers in all kinds of handwork a feeling of friendliness which does not easily arise over mere bookwork.

10. Institutions Providing Instruction in Gardening to Teachers in Elementary Schools.—A Visit to Proskau.

Having so far dealt with the school gardens which are connected with elementary and higher grade schools, both in town and country, I proceed to describe some of the institutions where teachers are encouraged to take short courses in the theory and practice of garden work.

On 8th May I visited Proskau. This is a large pomological institution supported by the Prussian Government for the benefit of East Prussia, corresponding to the similar institution at Geisenheim, which exists for the benefit of the western parts of the kingdom. At Geisenheim, which is in the wine-growing district, special attention is paid to the vine; while at Proskau, where the climate is unsuitable for the production of wine, more attention is devoted to fruit culture.

Proskau is about seven miles from Oppeln, on the Oder, in the midst of a wide plain. The soil of the garden is a heavy clay, and most difficult to cultivate. The villages in the neighbourhood are entirely agricultural, but the villagers are thriving and the houses look substantial. The peasants can afford to eat meat every day.

I was most kindly welcomed by Dr. Stoll, and found that my visit coincided by a happy chance with one of the conferences of the district school-inspectors, which take place three times a year at this institution, when lectures are given to the inspectors on subjects connected with school gardens, and discussions are held afterwards.

These conferences last three days, and twice a year the teachers in the village schools have permission to attend, at the Government

expense, a course on fruit culture, which lasts for three weeks in the spring and two weeks in the summer.

I visited the library, where teachers could inspect some of the best books of reference, diagrams, and apparatus for instruction, and the museum, where special collections were arranged and described to illustrate the preserving of fruits and vegetables, the ravages of insect pests, the various kinds of seeds, different kinds of timber and other matters.

There was a most ingenious contrivance for disinfecting all the stuffed birds and animals, consisting of a zinc box about four feet long, three feet wide, and two feet high. This box was provided with a lid which fitted into a wide groove, into which water could be poured, and thus seal the chamber. The stuffed animals were placed once a year in this chamber, and disinfected by this simple and effective piece of apparatus.

I also visited the section for making cider and bilberry wine, and afterwards the forcing houses and the conservatory, containing many rare and beautiful and curious flowers, and notably a cross between a rhododendron and an azalea raised in Belgium. There was also an orchid house and a palm house.

After this I joined the school inspectors, who numbered twenty-five, and attended a lecture which was given by the director, Dr. Stoll. Most of the inspectors were clergymen, and each had a large district, including some two or three hundred schools.

The lecture related to the proper method of planting young fruit trees. The much discussed questions of cutting roots and shoots were dealt with in a practical way, and led to a lively discussion. The preparation of the hole, especially in a clay soil, was the other topic, and also led to much conversation. It was remarkable to notice the keen interest which the inspectors took in the details of fruit-growing, and it was evident they were sparing no pains to make this instruction a reality in their various districts.

I then visited the village of Klagnitz, about a mile from the institution. Here a new school has been erected and provided with a garden. The school is divided into two classes, each under a separate teacher. The garden contains rather more than a rood, and is rectangular. The master has in his class fifty-five children (boys and girls), and these work for an hour weekly in the garden under the master's superintendence, while theoretical instruction, bearing on plant life, is given during the lessons on natural science. The younger children constantly use the garden for illustration of their lessons on common things. The Government contributes £5 a year to the maintenance of the garden. The cultivation included fruit trees, vegetables, and a few flowers, and all was in excellent order. The master also kept bees.

Returning from the school I visited the plantations at Proskau, in which all sorts of trees which are suitable for parks and copses and large gardens were being grown, and afterwards the extensive fruit gardens and vegetable gardens of the institute.

I then visited the home of the students and saw the well-organised domestic arrangements, kitchens, dormitories, baths, etc. I also visited the drawing schools, where some of the students were at work upon designs for public gardens in various towns.

As the Proskau institute is playing so important a part in the development of school gardens, some detailed account of it appears to be of interest.

I.

Object.

The Royal Proskau Pomological Institute exists to promote and improve gardening in all its branches. The means to this end are (*a*) various courses of instruction; (*b*) the cultivation of trees and plants on a large scale; (*c*) the institution of investigations and experiments which bear on cultivation, and some of which extend over a long period of time.

Various Courses of Instruction.

1. For students (a two-year course).
2. For guests (at least six months).
3. For teachers in training colleges and elementary schools.
4. For foresters.
5. For apprentices in the School of Forestry at Proskau.
6. For all interested in the diseases of plants and especially of fruit trees.
7. For gentlemen's gardeners.
8. For all interested in gardening and fruit-growing (landowners, etc.).

The Course of Study for Students.

In this course young gardeners receive a complete theoretical and practical instruction in all branches of garden work. The length of the course, which commences either at Easter or Michaelmas, is two years. It is open to young gardeners who have completed their seventeenth year, and reached at least the upper third class in a Gymnasium or an Upper Real School, or the second class of a Progymnasium or a Real School, and have gone through an apprenticeship of two years in practical garden work satisfactorily.

In case a candidate has passed no such examination, he will be examined on entry by the authorities of the institution, who will satisfy themselves that he is able to profit by the instruction which is being given there.

In certain cases the qualification of a two years' apprenticeship can be dispensed with at the discretion of the director of the institution.

In certain cases the course may be extended after the completion

of two years for one, or at most two, half years, for the purpose of making a special study of some particular branch.

The subjects of instruction are:—

Fruit culture (including the vine).
Planting, pruning and grafting, forcing, choice of kinds, preserving fruit, and jam-making.
Vegetable growing and forcing.
Agricultural crops.
Flowers.
Pot culture.
Timber and timber trees.
Landscape gardening.
Drawing and colouring plans for gardens.
Measuring, surveying, levelling.
Botany, anatomy, physiology, and morphology of plants.
Diseases of plants.
Geography of plants.
Microscopical exercises.
Botanical excursions.
Chemistry (organic and inorganic, especially relating to manure).
Physics (especially relating to warming and lighting and to meteorology).
Mineralogy and soil.
Zoology (especially relating to noxious insects, etc.).
Mathematics.
Book-keeping,
Bee-keeping.
Shorthand.
Law and Economy as relating to land.
Ambulance.

II.

Course for Guests.

This course is open to landowners and others. They share in the life of the place, and in most cases pursue the same studies as the student gardeners. The fee is £2 10s. a month.

III.

Course for Teachers.

This course lasts for a fortnight or three weeks in the spring, and ten or twelve days in autumn.

The principal subject is the cultivation of fruit trees. The number is limited to twenty. The Government allows travelling expenses and three shillings a day for living.

IV.

Course for District School Inspectors.

This is a conference on school gardens, with lectures on fruit

culture, and is held three times a year. It is open to any inspector in the districts of Oppeln, Breslau, and Liegnitz. A considerable number of inspectors in these districts have at one time or another availed themselves of this course.

V.

A Course for Foresters.

This is divided into a spring course of three weeks and an autumn course of a fortnight, and consists of purely practical work among the forest trees.

VI.

Course for the Study of the Diseases of Plants.

This course is held in the month of June and lasts for a week. It deals with the common diseases of plants and their remedies, and is open to all who are concerned with these troubles.

VII.

Course in the Care of Trees for Gentlemen's Gardeners, who Possess Experience.

This course is held towards the end of February and lasts for a week. It is open to others besides gardeners. It is not open to young gardeners.

VIII.

Course for all who are Interested in Gardening or Fruit Culture.

This course is intermediate between II. and VII.

Besides these courses the Institution is open at all times to any who may be interested in the subjects which are dealt with in the Institution, and who may desire to ask questions or seek advice.

Fees:—For Students (Course I.)	
For the first and second half year	£3 0 0
For the other half years	£2 5 0
Cost of lodging, food, and washing	£3 15 0
Ditto for non-Prussians	£5 0 0
Fee for Guests (Course II.)	
For the half year—	
For Germans	£2 10 0
For Foreigners	£3 15 0
Fee for Teachers (Course III.)	
Free for Prussians.	
For Foreigners	£1 10 0
There is no fee for Courses V. and VI.	
Fee for Course VII.	
Free for Prussians.	
Foreigners	£0 15 0

For Course VIII.—The fee is ten shillings a week and five shillings for laboratory expenses.

Examinations and Certificates.

Students at the end of their two years' course undergo an examination, according to the result of which, combined with the amount of industry shown in the course, a certificate of proficiency is awarded.

At the conclusion of each half year an examination is held, and a report supplied to the parents of the students.

Apparatus and other Means of Instruction.

1. Fruit garden and plantations, about 4 acres.
2. Park and arboretum, about 2½ acres.
3. Kitchen garden.
4. Beds for the cultivation of flowers and shrubs.
5. Nursery for fruit trees, about 3 acres.
6. Espaliers.
7. Forcing houses, etc.
8. Hothouse, greenhouse, frames, etc.
9. Fields for crops, wheat, etc.
10. Library (3,000 vols.)
11. Museum, (5,000 specimens).
12. Preserved fruit, jam, bottled fruits, tinned fruit, dried fruit.
13. Experimental plots, etc., for physiology and chemistry of plants.
14. Beehives.

Proskau is a town of 2,500 inhabitants, healthily situated on rising ground. Around it are pine woods, and the distant views which command parts of the chain of the Giant Mountains are particularly beautiful.

I have attempted to give some idea of the establishment at Proskau, but there is another impression which cannot so easily be expressed in words. The life which is led there is most attractive. Besides simple living and close attention to work, there is a breadth of interest which might hardly be expected in a college for such a special purpose as the cultivation of fruit. The conversation passed from cultivation of fruit trees to culture of another kind, which ranged from the consideration of German thinkers and poets and men of science to the art of the day in Germany and England, to the general trend of European politics, and that of England in particular. It would be hard to find another institution in which plain living and high thinking are more happily combined with agreeable surroundings.

11. The Influence of School Gardens in Towns upon Social Life. A visit to Mr. Cronberger's School at Frankfort-on-the-Main, and an account of the Frankfort Small Gardens Association.

It is not unreasonable to ask whether, in the case of towns where attention has been paid to gardening in connection with the schools,

any influence of this training can be traced in the social life of the people. A description of a visit to the schools at Frankfort-on-the-Main will afford some evidence that garden work at school is not without a healthy and beneficial effect upon the occupations of the scholars in their later life.

On the 15th of May I visited Herr Cronberger, a teacher in a large school in Bornheim, which is a suburb of Frankfort-on-the-Main.

For miles around the country is one huge garden, where fruit and vegetables of all sorts are cultivated with the greatest care. The view from a neighbouring eminence commanding the valley plain of the River Main and the slopes of the Taunus Hills, a mass of white blossom as far as eye could reach, was one never to be forgotten.

Herr Cronberger is the author of an invaluable and far too little known book on the arrangement of a school garden as a means of education, together with a history of the movement in the past, and an account of its present condition, both in Germany and other European countries. To this treatise I owe most of what is of value in this report.

Herr Cronberger received me with cordiality, and conducted me over a half a dozen large elementary schools in Bornheim.

Every one of these, according to regulations, is supplied with a large playground. The centre of this is free for play. Around it are planted a great variety of trees, and against the boundary are small beds of flowers, vegetables, field crops, and ornamental shrubs. The children do not, however, work in these gardens with their own hands, but use them for purposes of observation, while the teachers procure from them specimens for illustrating their lessons in elementary science. Mere reading about facts of scientific interest or listening to descriptions of them based on diagrams and blackboard drawing is considered wholly inadequate. "No teaching without the object" is the principle upon which all this kind of instruction is invariably given.

The objects supplied by the gardens are supplemented by extensive collections made by the children themselves in the course of expeditions to places of interest in the neighbourhood.

It is the aim of Herr Cronberger to make all this work as practical as possible, and to show the bearing of it on everyday life, whether in household management or in the garden and field.

In each school there was also a set of the usual meteorological instruments, so that each playground was a meteorological station. The schools are also supplied with a large amount of useful apparatus for demonstrating the common facts of modern science which are at the root of modern industry, whether in the home, the workshop, or the manufactory.

Herr Cronberger finds his plans and ideas for the spread of school gardens far less generally carried out than he could wish, but energetic people are in the habit of thinking that until all is

complete nothing is done. Some evidence of the success of his teaching in creating a love of nature and gardening appears in the recent formation, under his guidance, of an association for the encouragement of small gardens for the townsfolk of Frankfort.

At first sight these might seem much the same as our allotments, but a visit to the gardens themselves on the outskirts of Frankfort on a sunny evening conveyed a very different impression.

Herr Cronberger's wish is to inspire the rising generation with a wholesome interest in nature and the outside world, in flowers and shrubs and fruit trees, and wild birds. This, in his view, is the best way to counteract the false excitement and craving after unwholesome amusements, which are rife in large towns where wealth is abundant.

In 1899 a society was formed for establishing small gardens in Frankfort-on-the-Main. The committee guaranteed some £500, and rented on a fairly long lease some two hundred acres of good land on the hill at Bornheim, one of the suburbs. The plot is itself surrounded with fruit gardens and commands beautiful views. It is, though only a mile from the centre of Frankfort, breezy and attractive. The plot is subdivided by substantial iron-wire fencing into small garden plots of about two hundred square yards, each of which is provided with a small summer-house. Such a plot, including the summer-house, is let for 22s. a year. The gardens were very neatly kept, and no two were cultivated alike, but in none of them were flowers neglected. Two pumps supply water. There is a special plot of land where quite young children can play together, and also a portion of ground where the very poor can be supplied with land gratis. This is managed by means of an old charity which is devoted to the purpose.

In order to assist the members with their gardening, lectures are given during the winter, which are well attended, and at all times the gardener, who has a house on the spot and looks after the whole plot, is ready with advice. The subjects of the monthly lectures included :—

1. Practical advice for working a small garden. (October.)
2. How to make the most of the fruit from a small garden. (November.)
3. Window plants. (December.)
4. By what means may the cultivation of fruit in Bornheim be improved. (January.)
5. On pruning fruit trees. (February.)
6. On cultivating roses. (March.)
7. On sowing and planting out vegetables. (April.)
8. On the formation of a seed bed and sowing. (May.)
9. On growing flowers in small gardens. (June.)
10. How to supply the house with fruit from a small garden all the year round. (July.)
11. The chief points in vegetable growing. (August.)

Many of the lectures were illustrated by practical demonstrations in the gardens. The lecture on pruning was given by the manager of the Frankfort Experimental Fruit Garden, a private society of importance to the furtherance of fruit-growing in this neighbourhood, and members were after the lecture invited to visit the garden of this association, a privilege of which nearly half the members availed themselves.

Besides the enjoyment of a healthy and interesting occupation for a man and his children, for whom the summer-house is the scene of an almost nightly tea picnic, the sale of the vegetables pays the rent. In the following list of sales no notice is taken of flowers or strawberries or vegetables supplied to the family.

Sale of Vegetables.

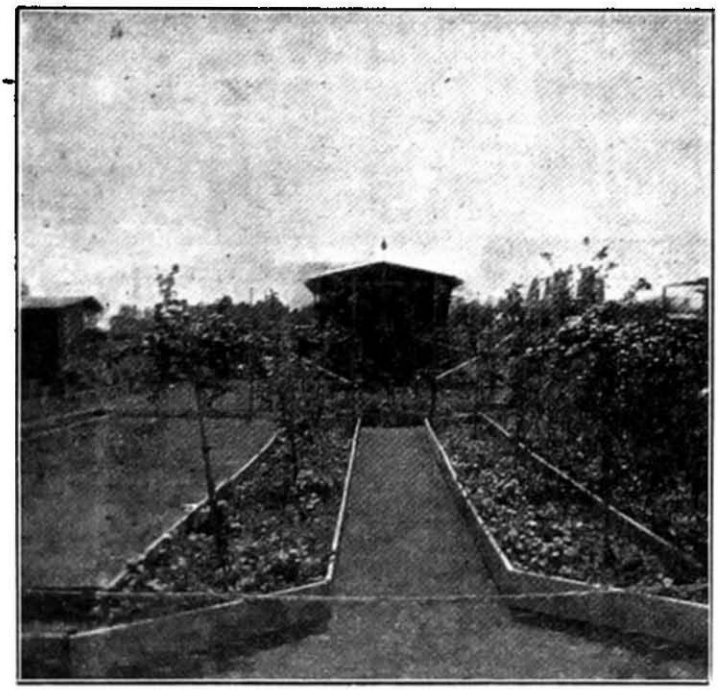
	s.	*d.*
Spinach	1	0
Lettuce	1	0
Peas	1	0
Cabbage and Beetroot	1	0
Broccoli	1	6
French beans	9	0
Savoys	1	6
Potatoes	5	0
Cucumbers	2	4
Sum	23	4

In the summer an exhibition was held and prizes were offered for the gardens which were judged to be in the best order as well as for the best plants shown.

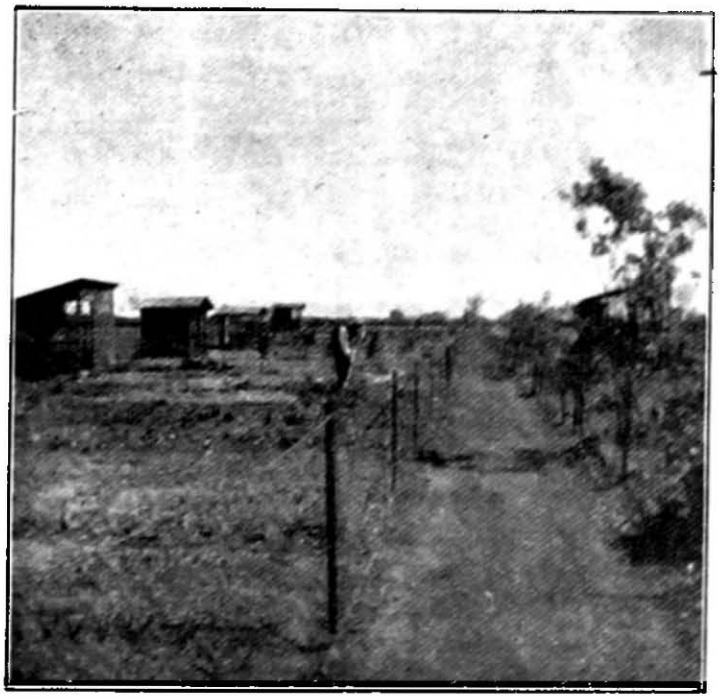
In the autumn the children in the nearest streets are invited to come to the gardens to carry away flowers which they are to preserve in pots or boxes during the winter and bring again in the following spring, the best grown being rewarded with a prize. The spring exhibition of these flowers affords great pleasure to the children. A small monthly magazine is circulated among the members and holders of plots.

It seems as if school gardens, cottage gardens, experimental gardens, and market gardens and fruit farms are gradually becoming parts of a social and industrial scheme, in which all parts profit, the children by improved education, society by an improvement in the occupations of the people after their day's work, and the interest in scientific horticulture, and the market by improved and cheaper fruit.

I visited the above-mentioned experimental fruit garden at Frankfort. It is situated on the other side of the river in Sachsenhausen, in a triangular space enclosed by railway embankments. It is partly supported by an annual contribution from the town, and is admirably arranged for promoting and improving fruit



ONE GARDEN PLOT IN THE GROUNDS OF THE FRANKFORT SMALL GARDENS ASSOCIATION.



General View of the Grounds of the Frankfort a./M. Pomological Association.

culture in the district, and is doing much to spread a knowledge of the theory and practice of fruit-growing in the neighbourhood.

12. An Account of a Visit to the Horticultural School at Geisenheim, on the Rhine.

The last institution which I visited was the Royal School of Fruit, Wine, and Horticulture at Geisenheim on the Rhine. This is one of those institutions where short courses for teachers are periodically held, and some account of its general organisation will therefore be useful.

The ordinary course of studies is two-fold; there is a lower course which lasts one year, and a more advanced course which lasts two years.

(1) The one-year course is intended for young gardeners who wish to improve themselves, especially by acquiring such theoretical instruction as helps the practical gardener. This course is also open to students who have not been gardeners, but wish to acquire some practical and theoretical acquaintance with fruit and vine-growing. The qualifications necessary for admission to this course are:—

1. To have passed through an elementary school with success.
2. To have been for two years apprenticed in gardening.

The technical studies are dealt with in as practical a way as possible. The science is taught so as to be as easy to grasp by practical gardeners as it can be made.

The year's course is divided into two groups—(*a*) practical (technical) work; (*b*) theoretical.

The practical work includes (*a*):—

1. Fruit trees, planting, tending, ; espaliers; sorts; jams and preserves; cider, etc.
2. The vine.
3. Gardening; landscape gardening; hot beds; hot-houses and greenhouses; culture of chief ornamental flowers; timber; shrubs; forcing fruit; vegetables; designing, and drawing and colouring plans for garden beds.
4. Surveying and levelling.

(*b*) Theoretical work:—

1. Botany; simple studies, with expeditions and practice in determining the names of plants.
2. Physics; structure and use of the chief instruments employed in horticulture.
3. Soils; draining; irrigating.
4. Manures.
5. Insect pests; zoological excursions.

6. Moulds and funguses, etc., which attack plants.
7. Arithmetic, especially mensuration.
8. German—
   (*a*) Writing.
   (*b*) Exercises in describing and lecturing and demonstration.
9. Subsidiary studies: Book-keeping; commercial correspondence; shorthand; painting flowers and fruit; singing; ambulance.

(2) The course for the two-year students is intended to prepare those who wish to become teachers in horticultural schools or peripatetic teachers, or to obtain superior positions in the gardening industry.

The qualification for entering upon this course is to have passed the upper third class of a Gymnasium, or an upper Real School.

During their first year these students pursue much the same studies as the others, but in addition they learn more in the theoretical part of their work, *e.g.*:—

1. Botany; morphology; system; the cell; the chief organs of plants; botanical excursions.
2. Inorganic chemistry and mineralogy, especially as bearing on the food of plants.
3. Physics; mechanics; special attention to electricity.

In their last year these students pay more attention to scientific work than to practical work, but the practical work is continued throughout the course, and also the exercises in giving lectures and demonstrations.

The following is the plan of study:—

Practical.

(1) Fruit. The chief sorts.
Estimates for laying out large and small fruit farms.
Income and expenditure. Markets.
(2) The vine—extended study.
(3) Gardening. Estimate of cost of laying out gardens according to plans of own design.
Application of design to all kinds of pleasure-grounds.
(4) Measuring, levelling, use of compass and theodolite.

Theoretical.

(1) Botany. Physiology of plants. Anatomy. Growth. Nourishment, reproduction, fermentation, systematic botany.
Excursions for studying flowers.
(2) Chemistry. Organic chemistry. Manure. Soils. Chemistry and technology of wine, vinegar, and brandy.

(3) Insects and plants that injure culture. Zoological excursions Microscopical studies.
(4) Meteorology.
(5) Drainage. Theory of preparation of soil.
(6) Mathematics, geometry, and arithmetic as before.
(7) Practice in lecturing.

Subsidiary Studies.

Painting flowers and fruit. Rules for construction of stone, cement, and iron houses for gardens.
Garden architecture.
Elements of political economy. Elements of law which affect gardeners. Singing. Ambulance.
Excursions to gardens, vineyards, farms, etc.

Examinations.

(*a*) The examination at the end of the one-year course consists of an oral examination, which lasts one day, and a written examination, which lasts three days.
(*b*) The examination at the end of the two-years' course is also oral (one day) and written (three days).

After three years' work in practical business those who have passed this examination "well" may present themselves for another examination, which is both oral and written. This is a Government examination, and shows the candidates' success in applying science to industry. Success in it qualifies the candidate for a post as teacher of fruit, wine, and flower culture, or as a head gardener.

The fee for teaching is, for the first year, £6; for the second year, £9.

The cost of board is, for Prussians, £17 10s.; for others, £25.

Short Courses.

(1) Fruit culture and gardening.

This course is intended for clergymen, teachers, and owners of gardens or land. It takes place at the end of March, and lasts three and a half weeks.

The subjects dealt with are tending fruit trees; diseases, espaliers; training and manuring fruit trees; insect pests, vegetable and flower culture.

The morning from nine to twelve is devoted to lectures, and in the afternoon practical work is done in the garden. The latter includes espaliers, pruning, grafting.

Th course is free to Prussian teachers. Non-teachers, if Prussian, pay £1, and if not, £1 10s.

This course is supplemented by another in the autumn, lasting

six days, when the following points are dealt with both through lectures and practical work. Budding, pruning, treatment of dwarf trees, and preserving fruit, jams, etc.

There are also other short courses for (1) those who attend to trees in streets and along the highways, held in March and lasting three and a half weeks. (2) A course for owners of vineyards, in January, three weeks. (3) A course in preserving fruit, making jam, packing fruit, etc., for men and women, in September, one week. (4) Course on the insect pest that attacks the vine, in February, three days; and other courses.

Lastly, those who are properly qualified are permitted to go through a course in the laboratories to suit their requirements, paying 10s. to £1 extra for reagents, etc.

Teachers who attend the course receive from the Government a sum of money, viz., £5, for the first part of the course, and £2 for the second part, which pays them for their maintenance and travelling expenses, or nearly pays.

The director is of opinion that these courses certainly have done good. He thinks it would be better if the teachers were in the habit of attending for more than once. He also thinks that in some cases the school gardens attempt too much instead of aiming at simplicity.

According to his estimate, the Prussian elementary schools in rural districts may be divided into three classes in respect of garden work. One-third teach gardening successfully; one-third only moderately; and one-third insufficiently. Much depends upon local effort and encouragement.

To understand the full value of the efforts which are being made to introduce gardening or fruit culture into German schools, it i necessary to bear in mind that the movement is part of the national system for promoting agriculture and horticulture.

How important this system is will best be seen from a brief summary of the work which is being done in all kinds of educational establishments, from the highest to the lowest.

The Minister of Agriculture, through local chambers of agriculture and local agricultural associations and clubs, is in close touch with all who are concerned with land and its produce. Chairs and professorships are established at the universities, and there the highest learning is devoted to research. The results of it are spread through secondary and intermediate schools, and through these to continuation and elementary schools.

The success of the lowest portion of this organisation depends chiefly upon individual energy of inspectors and teachers in various localities, and, although it is not uniform, there is no question that a good deal of excellent work is being done where the locality has the good fortune to be supplied with energetic promoters of agricultural and horticultural improvement.

13. An Outline of the National Provision for Instruction in Agriculture and Horticulture and Allied Industries in Germany.

The provision for instruction in agriculture, horticulture, and the allied industries in Germany may be roughly classified under three heads—namely higher, intermediate, and elementary. The higher instruction is provided at certain universities or university colleges, sometimes called technical high schools. The intermediate instruction is given in schools of a secondary character, where the course of instruction corresponds to a real school. The elementary instruction is provided for by summer and winter courses, with or without practical work, and in the upper classes of elementary schools and continuation schools. The teaching in the lower grades depends upon the higher in each case, and in order to understand what is being attempted in the lowest stage, the elementary school, it is necessary to review the work of the higher grades.

Prussia.

Instruction in agriculture of the advanced or university type is given in more than one university. The students are matriculated into the university, and are members of it in the faculty of philosophy. As an example of the opportunities which are offered to students of agriculture reference may be made to the university of Königsberg.

1. Buildings open to the students.

(*a*) The Agricultural Institute, with library, reading-room, collections, laboratory for dairy work and zoological laboratory, experimental dairy and cattle stalls.

(*b*) The physiological laboratory (agricultural) and the botanical garden. Experimental plots for demonstration and research.

(*c*) The veterinary department, in which 2,000 animals are treated annually.

(*d*) Laboratory for agricultural industry. This is in close touch with the institute of Kleinhof, with its sugar factory, distillery, station for breeding horses, sheep, cattle, and swine, experimental dairy, electric light and power, field railways, etc.

2. Lectures.

General introduction to the study of agriculture, stock raising, dairy farm, laboratory work in connection with milk, zoology, botany, meadow land, improvement of land, exercises in the physiological laboratory, surveying and levelling, diseases of cows, horses and sheep. Bacteriology, diseases of plants, insects, noxious and beneficial. Book-keeping.

The chemistry of the food of animals. The food of plants,

manures, production of beer and spirits, theoretical and experimental chemistry. Experimental physics, comparative anatomy of animals and zoology, with laboratory work. Fish culture. Botany and physiology of plants, with laboratory work. Meteorology and astronomy. Geology and mineralogy, with excursions. Pharmaceutical chemistry.

Political Economy and Law.

Similar opportunities are offered at the universities of Breslau, Halle, Kiel, Göttingen, and Bonn.

It is perhaps needless to say that the university of Berlin enjoys the highest reputation of all the German universities. The capital of the empire has naturally attracted to itself the highest talent, and has the most splendid equipment for instruction in agriculture and allied subjects.

At all these institutions a Government certificate is provided for students who pass (*a*) a three-years' course, qualifying them to be teachers in agricultural schools, and (*b*) a two-years' course, qualifying them to be land agents.

Intermediate Instruction in Agriculture.

Schools of this kind are subsidised by the Government, but are not established by the State. They are under the supervision of the Minister of Agriculture along with the Minister of Education. The lower classes of these schools follow the course of instruction in a real school. French is obligatory. In some cases Latin is taught.

As an example of the organisation of these schools reference may be made to that of Heiligenbeil, near Königsberg, founded in 1879.

There are 115 scholars. There are eight teachers and three assistants. The annual fee is £5 in the lower classes, and £6 in the upper classes.

The subjects taught are:—German and French. Latin is voluntary. Geography and History. Physics and Chemistry. Mathematics. Drawing. Singing. Drill.

In Prussia there are sixteen similar institutions distributed over the various provinces.

Elementary Instruction in Agriculture and Horticulture.

Instruction of an elementary character in agriculture and horticulture is of a very varied description. The main object is to spread among people who are engaged in agricultural and horticultural pursuits something of the learning and practice which is

taught in places of higher education. The instruction is provided either by local agricultural societies or private enterprise, but is subsidised by grants from provincial public funds.

As an example of one of these schools, reference may be made to the farm school at Bremervörde, in the Province of Hanover, opened in 1875. The course lasts for a year and a half, and the fee is £4 10s. a year. There are five teachers. The school is provided with a botanical garden and a fruit garden. The chemical laboratory offers to students the opportunity of making simple experiments for themselves. There is also a seed-testing department. The school is intended for those who have passed through an elementary school with success.

Of similar schools there are in Prussia, distributed over the various provinces, about 130. Besides these schools arrangements are made in various localities for peripatetic instructors in dairying, gardening, horseshoeing, beekeeping, and the like. There are also schools of housekeeping for girls.

There are also continuation schools for studying agriculture or horticulture amounting to about 1,100. Almost every village has its agricultural club or association. There are in Prussia some sixteen or seventeen hundred of these minor associations which are in touch with the Provincial Chambers of Agriculture and the Minister of Agriculture. Since 1898 the establishment of a Chamber of Agriculture has been compulsorily established by law in every province.

Bavaria.

The higher instruction in agriculture and horticulture is provided for at Munich. Special attention is paid to the science of brewing, for which Bavaria is famous.

There are also in various parts of the kingdom numerous other schools providing intermediate and elementary instruction in agriculture and horticulture, including about three hundred continuation schools

Saxony.

In the kingdom of Saxony higher education in agriculture and horticulture is supplied at the university of Leipsiz, and there is also the famous school of forestry at Tharandt, near Dresden. The country is also supplied with a number of intermediate agri cultural schools and also winter schools and continuation schools with short courses.

Würtemberg.

In Würtemberg there is the famous agricultural college of

Hohenheim, and some twenty-six schools of the intermediate and more elementary character.

Other Parts of the German Empire.

In other parts of Germany the universities of Jena and Giessen offer opportunities for advanced study in agriculture and horticulture, while in less advanced work students can pursue their studies in some hundred and twenty schools of various types. One of the most important of the higher intermediate schools is that of Marienberg, at Helmstedt, in the Duchy of Brunswick. In Brunswick there is a special school for the study of the sugar industry. As in Prussia, so in the other States, local agricultural societies exist in many villages, by whose means instruction in agriculture and horticulture is provided and maintained in some sixteen hundred and twenty schools of various descriptions.

T. G. Rooper.

September, 1901.

IMPRESSIONS OF SOME ASPECTS OF THE WORK IN PRIMARY AND OTHER SCHOOLS IN RHINELAND, ETC.

The word "Impressions" has been deliberately chosen by us as the most fitting title under which to summarise our experiences in the schools visited.*

We were there long enough for our impressions to be vivid and definite, but not long enough for them to develop into absolute convictions.

We give here not what we may have known from a book-study of the German system of education, but the actual mental photograph we brought back with us after a month's survey.

It may be that further and more critical investigation would have modified our opinions in many directions. Be that as it may, this is the mental picture we formed, and we claim nothing more for it than that; and since we are merely impressionists we feel ourselves entitled to the privileges of such shallow philosophers. We may occasionally express an opinion which has little of apparent fact to support it, we may sometimes appear to generalise on insufficient data—our prejudices even may appear—but all these are our privileges.

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* We were abroad in July and August, 1899, for practically a month. Roughly a week was spent in visiting rural schools around Düsseldorf, another week was spent in the primary and secondary schools of Cologne, and about another week in the Kindergarten, Primary, Mittel, and Secondary schools of Frankfort. The rest of the time was occupied in travelling. No time was lost owing to school holidays, as we were able, through previous intimation, so to arrange our work that the schools in the Rhine province were just about to close for the summer holidays at the time of our visit, and those of Frankfort had just recommenced after their vacation.

The following list shows the number of schools visited, the number in which we heard instruction given, and the number of lessons heard :—

	Schools.	Lessons.
1 Kindergarten	1	4
9 Primary schools	6	36
2 Mittelschulen (girls)	2	8
1 Höhere Mädchenschule	1	6
1 Realschule	1	3
2 Oberrealschulen	1	1
1 Commercial school	1	4
2 Realgymnasien	1	8
2 Gymnasien.		
1 Trade school.		

In schools where we heard no actual lessons, the head or assistant teachers showed us over the buildings in the absence of the classes, gave us a good deal of information as to the working and methods of the school, and showed us specimens of work done.

We may state as one of our general impressions the permanent enthusiasm for education which we noticed amongst all classes, from the ratepayer to the highest official; another impression was the conscientious respect for duty, that deliberate giving up of all his best energies to the charge entrusted to him, characteristic of the teacher, primary and secondary, urban and rural—particularly the last; not confined, however, let it be said, to German rural teachers, but found flourishing equally well at home. It was Guizot, who, with all a Frenchman's eloquence, once said: "However, sir, as I well know, the foresight of the law and the resources at the disposal of public authority will never succeed in rendering the humble profession of a communal teacher as attractive as it is useful."

"Society could not reward him who devotes himself to this service for all that he does for it."

"There is no fortune to gain; there is scarcely any reputation to acquire in the difficult duties which he performs. Destined to see his life spent in a monotonous occupation, sometimes even to encounter about him the injustice and the ingratitude of ignorance, he would often grow disheartened, and would perhaps succumb, did he not draw his strength and his courage from other sources than from the prospect of an interest immediate and purely personal. It is necessary that a profound sense of the moral importance of his work sustain and animate him, and that the austere pleasure of having served men and secretly contributed to the public good become the noble reward which his conscience alone can give. It is his glory to aim at nothing beyond his obscure and laborious condition, to spend himself in sacrifices scarcely counted by those who profit by them, and in a word to work for men and to look for his reward only from God."

We were interested also in noticing the evidences of solidarity amongst teachers and officials of all grades.

Class distinctions, though sharp, as in many parts of Germany, did not appear to interfere with that professional co-operation and sense of unity so essential to the successful working of a national system of education, and even these class distinctions were sometimes seen to disappear in the social amenities of "out-of-office" hours.

It has been said that the German teacher is "poor but proud." Proud, perhaps, but we hardly think that to-day he would be considered poor. We visited the homes of primary teachers, rural and urban, and our impression is that, on the whole, he is quite as well off as his British *confrère*.

A head master of a mixed elementary school of 400 children told us that his income, including his house, was £160 per annum, a salary by no means contemptible in Germany, where money is worth more than with us. In two years' time, he told us, he would retire with a pension equal to two-thirds of his salary. His house and the houses of all the teachers that we saw were comfortably, not to say luxuriously, furnished, and their hospitality afforded full evidence of comfort and ease.

Tables of comparative salaries are often misleading, for other important factors must be considered before a just comparison between salaries of English and German teachers can be made.

We were impressed also at what appeared to us the very slight disparity between the social position and worldly comforts of the town and rural primary teachers; indeed, it would not be too much to say that on the whole, the German rural teacher gets the better of the comparison.

This indeed is the opinion of some of the rural teachers themselves, as one of them said to us, "Why should I wish to remove to a town school? My salary would not be appreciably greater, and here I enjoy cheap living and unlimited fresh air."

The reason of this is, we assume, due to the fact that all are civil servants, and that the educational unit is not the school but the class. The head teacher [Hauptlehrer] of a primary school told us that he himself teaches 23 hours per week, whilst the other teachers taught from 30 to 32 hours weekly.

There is, it is true, a religious difficulty, but it is generally met by the community providing a separate school for each different sect, and thus a small village may have two small schools, one a Catholic and the other a Protestant. This is the rule, but in some towns visited, for example Crefeld and Cologne, we found a novel and, to us, surprising method of solving the difficulty. Under one roof and in the same block, with separate teachers and text-books, were two complete and independent schools, one a seven-class Protestant school, and the other a fourteen-class Catholic school, living in peace and concord with one another and using the same playground and offices. It is the hope of many of the teachers that ere long one set of text books and one staff of teachers will suffice for the two schools together.

Let us state further, that, generally speaking, fortified as we were by Royal "Erlaubnis," our visits to the elementary schools were visits without notice. We cycled out to the school, much to the teacher's surprise, with his somewhat austere views of officialism, interfered as little as possible with the ordinary work of the school, and by observation of the working of the school under normal conditions were able to form, let us hope, a fairly accurate impression of what the average rural school in Rhineland is like.

The town schools, particularly the secondary schools, were generally visited with notice, and we were sometimes accompanied by the inspector, who most kindly placed himself at our disposal whilst there. To Dr. Lüngen, of Frankfort, we wish to express our great indebtedness.

We will endeavour to systematise our impressions, and will begin with the school buildings in Germany.

We never saw a poor school building during ou journeys. That is a wide statement to make, but it is literally true.

We covered in our peregrinations much of the Rhine province of Prussia, and portions of Hesse-Nassau, Baden, and Darmstadt.

Of course, we are aware from the experiences of other travellers that it is not true to say there are no poor school buildings in Germany. We merely affirm that we saw none. On the contrary, all the elementary schools we saw were well built and in thorough repair, from the small country school with its twenty scholars up to the palatial schools of Cologne and Frankfort costing, we were told, from £20,000 to £25,000.

What shall we say of the secondary school buildings? That they are worthy of the great work for which they were designed is surely sufficient praise.

Figures, however, appeal to some minds; so we give here the cost of erecting some of these German schools.

Even the largest "block" of new school buildings in Germany, we believe, never provides accommodation for more than 1,600 children in the primary and 600 in the secondary schools, and the numbers enrolled would be about 1,200 and 400 respectively.

The new commercial school of Cologne, which will have accommodation for 600 boys, will cost when completed £50,000. The Goethe Gymnasium at Frankfort cost even more.

This school is not quite full, but taking the present number of scholars the cost per head works out at over £100.

It should be pointed out that very little of this expenditure goes in excavation, which swallows up so large a proportion of the cost of erection of schools in England, and still more so in Wales.

One of the Cologne elementary schools with accommodation for 1,600 children cost, we were told, £25,000, exclusive of the site. A Frankfort Mittelschule for Girls cost the municipality £20,000, and at present has 400 scholars. This is considered to be the finest school building of its kind in Germany. An elementary school we saw in Frankfort cost £23,000 and has 900 children in 18 classes, with 22 teachers. This school is fitted with shower baths for washing the children weekly. One secondary school alone costs the municipality of Cologne £8,000 per annum, and the director told us that he was stinted in no way. "Whatever I want I may have. I spend £60 yearly on additions to our natural history collection alone." So much for the actual cost. Let us say that there was evidence everywhere of a keen desire on the part of municipalities to spend freely and even lavishly on education. Education is a matter of education; the German authorities are dealing with highly-educated ratepayers: they are in fact reaping the fruit of a century of education. The German parent would as soon stint the mental food of his child as he would the daily bread.

We were naturally inquisitive as to the source of the large sums annually spent on education by the municipalities in Germany. We cannot go into the matter here, but two statements given us throw an interesting light on the question. At Aix la Chapelle, we were told, some years ago an insurance

society was founded, and one of the articles of association was that any sum annually earned over and above a certain percentage was to be devoted to charitable and educational purposes. The society has succeeded beyond hope—it has an enormous annual surplus, which it has devoted to building and equipping one of the finest commercial schools in Germany. The other statement was this. The city of —— is rapidly growing; it has long outgrown its fortifications, consequently the municipality negotiated and ultimately bought the ground covered by these fortifications. The Imperial Government with these funds built modern fortifications much further out. The municipality on the land thus acquired laid out fine suburbs, and ensured a good class of residents thereon by erecting magnificent primary and secondary schools there.

The German schools, both primary and secondary, are built on the class-room and corridor plan. They have no Central Hall, but the Turn Halle (Gymnasium) fulfils practically most of the functions of our Central Hall; but, of course, it cannot act as a "lung" to the school.

More might perhaps be done in utilising our Central Halls for gymnastic purposes. Out of school hours, at any rate, there can be no very grave objection, we think, to this, providing, of course, such a use does not interfere with their main function.

The Turn Halle is often used for collective singing, and is the only place in the Volksschule where the whole school can meet together and realise its corporate character.

The rural elementary schools we saw were generally built of red brick, and in two stories. In small country schools the upper story is the master's house. This is one of the rural teacher's grievances. He says that the noise from below is often very perceptible above.

In a few instances we found the master's house at the end of the school building, much to the satisfaction of the occupants. In the town elementary schools, particularly the newer ones, the head master's house is a very fine building indeed, and stands quite away from, though in the same grounds as, the school itself, and is generally built of similar material and is of similar architecture to the school. Curiously enough, the school janitor often lives under the same roof as the head master, having a few rooms devoted to his use. The same generally holds true of the secondary schoolmasters' houses. Often the finest structure in a fashionable suburban street is the schoolmaster's house.

But to return to the elementary country school. The ventilation is not generally so satisfactory as in schools at home; for example, one rarely sees an extractor or any arrangement for a constant in-draught. On the other hand, the windows are of the casement kind and open completely, so that when the weather is favourable (as during our travels) the windows are kept wide open, and the ventilation is quite satisfactory; but when the windows are closed the ventilation must be very imperfect. In the newer schools, particularly in the large urban elementary

and secondary schools, the ventilation is admirable, and is worked on what seemed to be the "Plenum" system. The "ventilating man" (who often does nothing else, and sleeps in the school in a room specially fitted up for him) is able by a hole in the wall to read the temperature of the thermometer in the class-room, and turn on a current of hot or cold air as may seem desirable. The thermometer is a piece of furniture that is never missing in a German class-room, whether town or country—primary or secondary—and more than that, it is not an ornament merely, but is as carefully watched as the school clock. The playground of the German country school is rarely divided off for the sexes; as a head master said to us, "These children play together at home and in the streets, why seek to separate them here?" The playground is usually covered with a loose gravel and is invariably planted with trees, affording a most welcome shade during these hot summer days. These trees are often of different botanical kinds, and have their uses in the object lessons.

Let us now re-enter the main building, and as we do so we shall notice how carefully the children wipe their feet on the gratings and mats placed at each door. We notice how clean the premises are, and on inquiry are surprised to find that they are swept and washed not much oftener than in England. There is no waste-paper to be seen about, for in each room we notice a waste paper basket, the fit and proper receptacle for all such chips of the educational machine. There is a habit of orderliness and cleanliness in all things that is very pleasant to the eye; one notices so few or practically no dirty hands or faces—even the threadbare garments of the poorer little ones are clean and well-darned; and yet these schools have no lavatories—no soap nor towel—nor even the inevitable basin on the tripod stand—none of these things so essential to the efficiency of other schools can we find. Nothing, indeed, but the ubiquitous school pump in the centre of the playground, the main function of which, we are given to understand, is to afford the necessary liquid refreshment to these thirsty German children.

We observe the name of the teacher on the class-room door. *One teacher to one room* is the invariable rule here. Consequently we never hear a German teacher shout.

In fact, he or she speaks so low, but, withal, so clearly, that throat diseases, so rife in other lands, must be here unknown.

He does not talk loudly, nor does he talk much. On the contrary, his pupils are made to speak loudly, and to speak much. So important is this answering loudly held to be that it is often very much exaggerated, and it becomes painful to listen to the unnatural strain which the pupils throw upon their undeveloped vocal organs

The German teacher guides more than tells; but we must leave him for the present.

The walls of the class-rooms are very bare. Busts or pictures of the three Emperors are the only embellishments.

A map or diagram of the school district, together with, in Catholic schools, a few simple and often crudely coloured religious pictures, are the only other ornaments of the rooms.

The maps are fixed on rollers above the blackboard and facing the class, and have an overhanging mantel to protect them from the dust. When required they are rolled down much as window blinds are.

The walls are generally coloured and always clean—sometimes we found the walls papered, and in the Kindergarten the patterns are pleasant and sometimes consist of figures of children playing or otherwise amusing themselves. French grey or light green are very general colours for the walls The corridors are severely bare, and the sole relief is the series of hat-pegs, cloak-rooms being a luxury rarely seen in German elementary schools; indeed hat-pegs are often seen in the class-rooms.

The furniture of the class-room consists of the teacher's and children's desks. The teacher's desk placed on a raised platform is of a type often seen in English schools, except that sometimes we notice that the drawers—so private and so full of mystery to the English scholar—are unlocked and open on the side towards the class, so that, as a teacher told us, the children may know the whole secret thereof!

The children's desks in these rural schools rarely vary, and are long, heavy desks, very substantially built (for let it be said they have only one function in life, and that an educational one), with receptacles underneath to contain the children's books, slates, &c. These German children have to buy their own material, and so, for example, the same Reader suffices for the greater part of their school life. These desks are rarely of the same size, even in the same class-room, each child being given, as far as possible, a desk suitable to his physical stature. In some of the newer town schools we were shown apparatus for periodically measuring and weighing the children. But to return to these substantial desks, a very ingenious contrivance was pointed out to us, by which a child may stand with ease in the gangway between seat and desk, and yet, when necessary, this horizontal distance or gangway is done away with, so that in the writing lesson, for example, a child may sit in a natural position without any stooping whatsoever. In the centre of each desk a small button may be pressed, and by so doing the whole of the top of the desk slides down some inches in grooves, until, in fact, the horizontal distance between seat and desk disappears, and at the same time there is revealed at the top of the desk a receptacle for preserving the ink, pens, &c., free from dust. This may not be new, but it is certainly ingenious.

The desks are often 9, 10, and sometimes even 11 rows deep, for the German elementary teacher has sometimes very large classes to deal with. Classes from 60 to 70 children are by no means uncommon, and even in Frankfort, which rightly, we believe, prides itself on being the Mecca of German education, the size of classes in the elementary schools has been fixed at 60, and those of the secondary schools at 40 pupils. In

a little country school we found one teacher in charge of 90 children between the ages of 6 and 14, divided into three sections. Is it to be wondered at that that teacher had a grievance and that he hid it not?

The blackboards are of many kinds, but there is one kind one never sees, and that is the continuous blackboard of the American school. There is the normal kind—a piece of board on a tripod; then we see the double board balanced and working on cords; also the board on casters so common at home; the board fixed in the wall; and lastly, but very commonly, the small blackboard fixed on the wall, and with two or more hinged leaves or flaps. Attached by another hinge we saw in one school an ingenious arrangement invented by the teacher himself for teaching notation up to millions; of this he was naturally very proud. It was a sort of pigeon-hole arrangement in which blocks of wood with numbers printed on them could be inserted. A contrivance very similar to this is often seen at home. In the secondary schools the blackboards are very well made, but generally smaller than ours, and contain an arrangement by which maps and other illustrations can be swung up at any required height.

The reading books are not in so great a variety as we are accustomed to. Each book must be approved by the Government Inspector or provincial Board before being introduced, and there is generally one for all Catholic schools and another for all Protestant schools in the district. These are often drawn up by the officials themselves, and are on sound educational lines. The usual German Reader is a well-bound book of some 500 pages of reading matter of the very finest character in the language. The illustrations are few or none, but the matter is above criticism. This book is begun by a child as soon as it has learned to read, and remains with him as his sole Reader until he is fourteen. It is graduated to suit his growing years. He learns the poems in it. His history and geography lessons are closely connected with the material in it and amplified therein. In short, the Reading Book is the point of concentration of practically all the instruction he receives.

The younger children, from 6 to 8, begin with a small, carefully graduated Reader. The first six months' reading from this book is in "script" character, and covers about twenty pages. Only gradually is the child introduced to the printed symbols. Pictures often supply the place of missing words in this Reader. The reading and writing lessons are intimately connected in these early days of a child's school-life. Here it should be mentioned how difficult is the work of a German teacher in teaching reading and writing, owing to their duplication of types—German and Roman; in fact, a German child has practically to learn eight alphabets; and yet we British are often reproached by the Germans for our non-adoption of the metric system.

In arithmetic it must be confessed there is much to admire. First of all the German teacher realises how unwise it is to bother the little ones with abstract quantities and tables. In all classes up to those of nine-year-old children one piece of apparatus is invariably the ball frame, and not such as grace some schools elsewhere, but huge frames five feet high, with balls as large as a fair-sized apple. There was no straining of eyesight here nor of memory either. We never heard "tables" going in a single school we visited. A teacher said, "We build up the tables for the lower numbers on the ball frame; as for the larger numbers, they learn those by oral practice later on." The text-books in arithmetic are generally drawn up by inspectors, and those for beginners are confined to numbers up to 100. They are very carefully graduated.

Here are some examples taken from different pages of such a book:—

```
/////  =  ////  +
/////  =     /  +
::·  −  :·  =
::·  −  ::  =
```

4 tens + 1 unit = 41 units
42 units = 4 tens + 2 units.

If a workman earns in one week 9 marks, in how many weeks will he earn 36, 54, 72, 81, 45, 63, and 18 marks?

&c.

In the more advanced text-book the pupil covers much the same ground as an English pupil would; but some geometry is also taken.

We saw no finger nor "unit" counting by any device in these schools.

Again, we were impressed by the very large amount of oral work in arithmetic, and also by the "passive" part the teacher often takes in the teaching. He calls upon a boy, who comes up to the blackboard to solve the problem set; each step, with the reason for it, is given, and the remainder of the class watches and criticises; everyone is interested, and the teacher is simply the guide or sometimes the referee—never a "teller of tales."

Practically no work in arithmetic is done in books; very occasionally we came across cases where problems had been worked first on slates, then copied into books, but these were very rare indeed.

Incidentally, we may mention here that slates are much more largely used than we had anticipated, even perhaps more so than at home. In a large town school the head master told us that his first class did all their work in books, and he hoped gradually to make it general. England went up visibly in his estimation when we informed him that paper and lead pencil had practically superseded slates in certain schools at home. All German slates have little sponges in a more or less unsanitary condition attached thereto by string, but the moisture comes from a perennial and natural, but still unsanitary source.

We shall now give a brief account of what impressed us in the building and apparatus of the town schools, both primary and secondary, for the difference between these is very slight indeed. The playground here again is always planted with trees, generally of different kinds, and in it also are often contained school gardens in which the school janitor cultivates various kinds of plants, such as flax, cumin, &c., which, it need hardly be said, have a highly educative value.

German janitors deserve a word of praise. Their industry, skill, and all-round capability are exceptional and commendable. We were shown some very beautiful natural history specimens in a Cologne secondary school which had been prepared by the janitor. The school gardens also showed how skilful these men were.

The most conspicuous object in the playground here again was the school pump with drinking cups attached. Unlike the country schools, however, no gymnastic apparatus is found in the playground. We should have mentioned that for the country schools the playground is invariably also the gymnasium, and contains a few simple apparatus such as parallel and horizontal bars.

These town playgrounds are generally covered with gravel, and are often divided up into plots, one plot for each class, and woe be to the pupil found outside his plot—he becomes at once an Uitlander.

The offices are sometimes in separate outbuildings, but in the most modern schools they are practically a part of the school building. They are flushed automatically, and seem to be in a perfect sanitary condition. Each office is assigned to its own class, and boys of a particular class in the school may only avail themselves of the assigned office.

These modern German schools are built often of red and white sandstone with granite steps and a very noble façade. They are generally four stories high, with four class-rooms on each story, *i.e.*, 16 class-rooms in all. These class-rooms are now invariably built facing the *North*. Running the full length of the building and beautifully tiled is the corridor. The floor of the class-room is of wooden blocks. On the south side of the building are the—what one may term—"occasional rooms," such as the room for Drawing, the Conference Room, the Head Teacher's Room, a room for Assistant Teachers, another for Women Teachers (in the girls' schools), the School Museums, Libraries, Laboratories, Chart-rooms, the Aula or Public Room, and so on.

Here and there along the corridor are placed drinking foun tains with cups; whilst in large recesses cloak-room stands are placed both for garments and umbrellas.

There is no lavatory, but in the new primary schools the basement is taken up by an undressing room and a huge bath-room containing half-a-dozen large shower baths, in each of which six youngsters stand and mutually avail themselves of the shower to get rid of the weekly accumulation of dirt. This is a necessity that is not felt, and so is not provided for, in the secondary schools. Under this term "secondary" let us say that here we

include Girls' Mittelschulen, which are really more like our Higher Grade schools than anything else.

A school at Cologne has its corridors decorated with fine frescoes and charts representing the growth of the German Empire from the earliest times up to the present. In most schools the corridors are decorated with busts of great Germans, such as Herder, Goethe, Schiller, etc., or by beautiful pictures of classical or historical scenes.

It is gratifying to a British visitor to see on how high a pedestal Shakespeare is placed in these German schools. Our national poet is as familiar, if not more so, to the German than to the English schoolboy. In conversation with our landlady, one of us remarked that he had been to the birthplace of Shakespeare in England. Lifting her hands in surprise, she exclaimed, "Ach, haben Sie Shakspeare auch in England?"

In the best of these schools the electric light is used, but in the generality of them gas is still the illuminant, and the primitive character of these gas-fittings is apt to strike one as incongruous and even ludicrous amid so much evidence of progress and liberality.

Just a word as to the entrance hall, though it is difficult to describe one, such as that of the Goethe Gymnasium, without using superlatives; and our regret is that we are unable to reproduce in this paper a photograph which we have of it. The rounded arches, fine capitals, massive pillars, coloured windows, and beautifully tiled floor, leading on to the marble staircase, combine to produce a very striking effect.

But let us inspect a little more closely one of these secondary school buildings.

The first room likely to attract attention is the Aula, or Public room, where the whole school assembles for prayers; this is a room that can accommodate generally four to five hundred boys. The younger ones do not attend the aula. The decoration is invariably of a highly ornate yet chaste character—the panels are either filled with frescoes or are awaiting an old boy and benefactor to provide them, and if not quickly supplied then the municipality or Government will complete them. Beautiful marble tablets are sometimes fixed on the wall bearing a list of names of benefactors, or of boys who died for the fatherland in 1870-71, or perhaps of boys who have *greatly* distinguished themselves in other ways.

All the care of the masters, all the love of the boys, is centred in the "aula." It is a glad day to the youngster when first he attends it. It is his ambition on the battlefield of war or life to carve his name in the marbles of his own school. Around it centre all those old memories which are the bitter-sweets of after life, whether that be tinged with sorrow or success.

The aula has invariably a grand piano, and generally an organ as well, and it is often used for singing exercises.

The gasaliers are most ornate, and the busts are generally plentiful and beautiful. On the platform is the direktor's reading-desk or pulpit. The windows are generally of coloured lass, admitting a subdued and subduing light.

But we must not stay admiring this room, for we have much more to see. The laboratories are what we are most anxious to see. The lecture theatre is generally the same for chemistry and physics, and is much like a well-equipped lecture theatre in an English university college. The desks, arranged in rising tiers, are dual, with sliding seats, and of varying sizes to suit the boys or girls using them. The windows are fitted with dark blinds, and the room is generally lit by gas. The demonstration table varies much, but is always well fitted up; for our impression, after going through the laboratories and lecture theatres, and after conversations with several teachers, is that the demonstration table is considered the sheet-anchor of the teacher of Science in these schools.

He has, it has been said, recently somewhat modified his views as to the advisability of teaching boys practical science in a laboratory, but generally he was satisfied that it is better for the youth to see beautiful and accurate experiments carried out before him by a skilled teacher who could simultaneously guide aright the observing faculties rather than for the pupil to toil along experimenting with unskilful hands and with but little help from outside. Although the German university is unrivalled as a school for the study of the Heuristic method, yet in the German school this method would, we fancy, meet with short shrift.

Consequently the German teacher's demonstration table and apparatus are beyond criticism. Whereas in an English teacher's collection you will find disused salmon tins, empty cotton-reels, home-made galvanometers and even balances, in the German's you will find none of these things, but exquisitely perfect models; expensive bits of apparatus; the latest developments of Hertz, Tesla, or Marconi, worked out in all variety of metal, regardless of expense. It is impossible to describe even a few of the beautiful pieces of apparatus we found there; we have seen nothing comparable in English schools; here is a model for showing the amount of heat developed in various electro-chemical reactions, there is a thermopile setting a magnet to revolve; again we have Ruhmkorff's coils of huge size and similar induction machines. What strikes a visitor in these physical collections is their finely finished specimens, the variety and number of them, the care with which they are looked after, and above all the liberality with which the school authorities supply them. Our impression is that very few university colleges in England or Wales could show a comparable collection of physical apparatus to that of the best German secondary schools, and whereas our English boys have to be content with a rough diagram or a book illustration, the German boy sees the actual apparatus at work. Consequently the German lad covers a wider field of experience, but his English rival covers a smaller field more thoroughly, because of his greater devotion to practical work in the laboratory, and of the tendency in our science instruction to throw a boy constantly upon his own resources.

The chemical laboratories in Germany are not numerous, and

the ones we saw showed little evidence of actual work. It is interesting to note that the tops of the working benches we saw were *grained and varnished*, and, when used, were protected from acids by pads of cardboard or asbestos!

We, like Dr. Russell,* were unfortunate in that we saw no class actually at work in the laboratories.

The laboratories we saw were evidently new, and, as has been already mentioned, only lately has the utility of the practical teaching of chemistry been admitted. Even now we doubt if its value is fully appreciated.

The laboratories are generally for the accommodation of 16 boys. The usual reagents are present above each bench. Inside the cupboards we noticed the usual set of test-tubes and wash-bottle, and inferred [rightly as we were afterwards told by a teacher] that the work is of the usual "test-tubing" character.

"Preparations," we were told, are considered more suitable for university students than for boys in secondary schools. A vacuum pump was fitted up in the laboratory, and the blow-pipes were generally blown by mechanical means. The operator could at will turn on a current of oxygen or hydrogen from the basement below. Each bench was also fitted up with electric connections, and a current of varying strength could be used whenever desirable. Gas also was turned on to each bench. Boys begin theoretical and practical chemistry when 17 years of age, so that chemistry is never taken up by the majority of German secondary scholars, who leave before that age, after completing the six years' course necessary to escape with one year's service in the army. The same holds true for physics, we believe.

Two hours a week is then spent at chemistry. In the higher and middle schools for girls both chemistry and physics are taught, but we were told that no practical work is done by the girls themselves; and the girls' schools we saw possessed no rooms fitted up for practical work in science.

It must, however, be emphasized that the apparatus and fittings for demonstration purposes that we saw in these secondary and higher primary schools are, in our opinion, far superior to those provided in similar English schools; moreover, it must always be remembered that in the opinion of many German teachers the educational value of laboratory and practical work generally, including manual instruction, is over-estimated in England.†

In practical physics we saw no instruction given, nor any

* See Russell's German Higher Schools, p. 150:—"Some of the new schools have quite extensive laboratory facilities, but, so far as my experience goes, they are seldom or never used by the students."

† It is unnecessary, perhaps, for us to point out that in no country in the world is the teaching of science, judging by its products, so successful, so thorough, as in Germany. The fact that many of our most brilliant modern English chemists and physicists have received part of their training in the German Universities is sufficient evidence of the admirable training in practical science of the German University.

organised means of giving such instruction, though we were often told that some of the boys help the professors in their work.

This question of the value of practical teaching in science has been, like all pedagogic questions, very thoroughly discussed and examined in Germany, and it would be unfair to lay undue emphasis on the strong condemnation of the lack of this practical training in the German secondary system of education, even when pronounced by so able and experienced a teacher as Dr. Riedler, of the Royal Polytechnic of Berlin. [See Report of the Commissioner of Education, U.S.A., Vol. I., 1892–3.] These views would not be accepted by possibly the majority of German teachers, and we draw attention to them only as showing that the question has been fully investigated and ultimately settled to the satisfaction of most secondary teachers in Germany.

We remember a secondary teacher laughing at what he good-humouredly called our "new fad," manual training. "You English," said he, "already do more than enough for the physical development of your boys with your football and rowing and cricket, why not turn your attention a little more to the mental faculties? You are apt to forget that your boys have heads."

In the schools which we visited we saw no manual training, nor indeed did it form a portion of the curriculum. It is perhaps hardly necessary for us to point out here how much Germany, and particularly the Leipsic school, has done for the recognition of manual training as an educative instrument in primary and secondary schools.

Even the cultivation of the child's self-activity as practised in the Kindergarten did not escape the jeer of a secondary teacher.

But to return to the school. The demonstration table for the teaching of chemistry is all that it should be. Gas and water fittings, electric current fittings, vacuum pumps in-draught and out-draught, supplies of hot and cold water, drying ovens, mercury trough, in fine whatever may have entered the mind of demonstrator is to be found here.

We cannot dwell further on this—for we must say something of the fine Natural History Museums attached to all these secondary schools. Here again we cannot—an we would—go into detail.

It would require an expert in such matters to catalogue the variety, the luxuriance, and general excellence of these specimens.

We should here mention that German firms have made a special point of manufacturing and preparing physical, chemical, and natural history specimens for schools to an extent quite unknown in England.

These magnificent specimens of natural history, ranging from the lowly but exquisite seaweed, bees, butterflies, and specimens illustrating mimicry, &c., up to the majestic carnivora are ample evidence of how enterprising these German firms are, and also how wide their clientèle must be. These specimens we were told are used not only to illustrate the natural history and

geography lessons, but also as models for the Art Classes of the school.

In some of the best gymnasien a separate lecture theatre is provided for the lessons in Natural History. This is fitted with a powerful lantern for illustrating the lesson, as indeed are most of the science lecture theatres we visited.

To illustrate the Botany lesson of the day we saw a bundle of plants in the hall of the school just brought in from the Municipal Botanical Gardens. Thus do they concentrate their resources in Germany!

Another interesting arrangement was the laying on of a telephone between the singing-room and the physics room so that experiments in the analysis of sound may be conducted with all the advantages tnat appertain to sound at a distance.

Another small room we noticed was fitted up with the necessary apparatus for the periodical weighing and measuring of the pupils. The conference and teachers' rooms generally call for no comment. The chart room is in the basement, and no pupil is allowed therein unless accompanied by a master. Here are kept maps, models, classical and historical charts, books of views, geographical and historical, and in fact all the illustrative material necessary for proper teaching. Also in the basement is the boys' library, managed generally by an assistant master, who for his trouble receives 100 marks per annum.

It is interesting to observe how very large a proportion of these boys' books are by English and American authors—Scott, James Grant, Cooper, Captain Marryat, etc. Up above on the first landing is the teachers' library, a collection of many thousands of volumes in German, French, and English.

That reminds us how common it is to find in Germany secondary teachers who speak English with comparative fluency and ease, and also how much study they have devoted to the English school system, of which, however, they have not generally seen the best side. "There is no other country in the world," said a German direktor, "that would tolerate such a system of private and so-called secondary schools as yours."

"You must take to conscription, then your secondary schools will improve," insinuated another head teacher.

Just a word as to the class-rooms; these are still of the severely simple and bare character noticed in the primary schools. The Imperial portraits and busts are more highly finished, and the apparatus generally is more complete and costly. Gas or electricity is the illuminant. In the lower classes one sometimes sees the points of the compass painted on the ceiling, and a metre-length painted on the wall—and also a square of one metre side. The desks are invariably dual and of varying size, and the class-rooms themselves vary, as the three upper classes [from 16 upwards] are generally considerably smaller than the lower.

The Turn Halle or Gymnasium remains to be described; this is generally an annexe to the main building, standing within its own walls, and generally open to the roof, with stays across. It

is beautifully clean and everything as "spick and span" as on an English man-of-war. The apparatus is of every possible kind many of them quite new to us, though amongst others that we recognised were—

Climbing ropes,
Climbing ladders,
Rings,
Giant's stride,
German horse,
Climbing poles,
Jumping stands,
Fencing sticks and guards,

and everything in fact that would seem necessary to teach the "young idea" how to walk and to carry himself well, and to nourish a sound mind in a sound body. A grand piano was invariably present.

One ornament we noticed in a Frankfort gymnasium was a wreath of oak leaves in a glass case. This is a prize competed for amongst the schools. Five champions from each school are chosen to run 1,000 metres; but, instead of running straight through, the lads are placed at stations and carry on the "staffeten" from one to the other, the school whose representative reaches the 1,000-metre post first winning the wreath of oak leaves.

Gymnastics is taken by forms, and generally by the form master. The exercise is stated verbally by the teacher, who then plays the piano, and to this music the exercise is carried out. Some of the girls' exercises in particular called forth unstinted admiration. The deportment and carriage of the girls was magnificent—they walked like duchesses. The legs are thrust well forward, the foot kept horizontal, and the toes catch the ground to the time of the march. Exercises were carried out with wands, which were thrown sometimes in the air from one hand to the other, sometimes to the next girl, and so on to the time of the piano. It was a fine exercise and finely executed. The dumb-bells used by the boys vary in weight from one kilo to two kilos, and are curved, not straight as in English schools. These are kept on racks, and when required a boy runs from the ranks, selects three pairs, taking one himself and distributing the other two pairs to his neighbours.

As a contrast, we must mention the gymnastics we saw in a country school of 20 children. The girls were taken in needlework by a woman from the village; the boys meanwhile being taken by the master in gymnastics in the playground. The battalion, nine in number, were typical country lads, and were presently joined by two little boys, sons of the proprietor of the castle close by. We were told by the master that these boys come down for certain lessons to the school. First they marched in single file around the playground kicking the left leg out much more than the right, as is the custom. Then they were called individually forward for exercise on the horizontal bars.

This was followed by games—real romping games that would not have shamed the heart of an English boy—and it was pleasant to notice the unalloyed zest with which the little aristocrats entered into the games, giving and taking with the best of the sons of their parents' servants.

German school games are not as bad as we had expected, though it is true to say that the only boys in Germany are the girls. It is the rule in country schools, at any rate, to see during playtime the boys slouching round and gossiping, or taking a spasmodic interest in the performances of one of their number on the bars; whilst the girls are wild with excitement over one of their many ring games. The German child's games are interesting, containing as they so often do some remnant of an old world legend, and carrying one's mind back to the days of saga and myth.

Of the games in the town schools organised and cultivated by special officials, as they have been for fifteen years, one cannot say much in praise. We saw boys play football (Rugby and otherwise), but we would fain refrain from criticism, for it is not the officials' fault. They have to go slowly, as the parents have not yet been educated up to the value of school athletics. The games the secondary school boys play in the school playground struck us as being of a rather elementary character. For example, "rounders," though a good old game, does not afford much scope for skill on the part of boys 17 to 19 years of age; and another game in which a ring of boys mounted on other boys' backs endeavoured to pass a ball on whilst the "horses" try to stop this seems open to the same criticism. We even saw big boys play "twos and threes."

Reference has already been made to the relative comfort of the German elementary school teacher's home. There is another matter that struck us, and that is his high social status. He is, let it be remembered, a well educated civil servant, paid fairly well as salaries go in Germany, has absolute fixity of tenure, and a pension at 65 years of age. Generally he ranks second to the local clergyman's first in town affairs, and is a man of weight and standing. Self-respecting, abstemious, and obliging to visitors, he is one of the best types of German—he is cultured, and has a fluent tongue. We were told [and we of course report it with all reserve, and without in any way attempting to appraise the matter, for we had no opportunity of judging for ourselves], that the local Protestant [and sometimes Catholic] clergyman is recognised by the Government as a kind of unofficial inspector; that is to say he performs the same functions as our "school correspondent," plus the power of writing private reports on the school and schoolmaster to the Government Inspector. As this latter official can only visit each school about once in five years he has to rely very much on the reports of these clerical correspondents. Some of the teachers allege that unless you go o church regularly you are subject to continual worry by some

of these local inspectors. Many of these complaints we were told arise from the unsympathetic way in which the clerical inspector, who attends the annual examination for classifying the children held at Easter, supervises the examination.

Another grievance of the German rural teacher is the abnormal size of his class as compared with those of town schools. This disparity in actual numbers did not strike us but the varying ages of his class, and the fact that he has sometimes to teach at least three sections simultaneously are undoubtedly a heavy burden.

There is a great similarity in the way in which this problem is met, and one may state as a rule that the Time Table is so drawn up that only one oral lesson is taken at a time. The German teacher would not attempt to take say two classes simultaneously in reading, handing one over to the wisdom and experience of one of the older scholars.

He will, for example, begin with the lowest sections, *i.e.*, children from 6 to 8 years of age. After a rapid exercise on the ball frame he will write on the blackboard the following exercises:—

1 + 1 =
11 + 1 =
111 + 1 =
1111 + 1 =
1 + 11 =
1 + 111 =
1 + 1111 =
11 + 111 =
111 + 11 =

These children then take out their slates, clean them, and proceed to busy themselves with the above exercises.

The teacher then takes the top section, *i.e.*, children from 10 to 14 years of age, in a Geography and History lesson with the necessary apparatus and illustrations. This lesson is oral throughout. Meanwhile, what is the middle section doing? Well, they simply sit and listen, so that by this constant listening to the lessons given to the first class they will, when their turn comes, have made a fair start in the memorising of many facts. This plan we found everywhere in small schools. There is indeed a great similarity between one elementary school and another; as a German teacher said, "They are all shorn over the same comb."

German primary teaching has been so highly developed as to be now a fine art, but like all such there is to be noticed in it distinct evidence of formalism. Though we have had, and shall have, occasion to praise much in German principles and methods, yet we believe that often the teaching is too set—it seems to lack the spontaneity, the variety, and the resource that characterise the highest type of teaching.

The answers of the children are often formal and stereotyped, and unless given in the particular form acquired by constant practice are not as a rule accepted.

A child will stand up and give an answer that is practically a set speech, the teacher occasionally prompting with a word.

There can be little doubt that though language exercise is highly and justifiably cultivated, yet that the desire for the complete sentence and the correct form of the answer has sometimes led them to sacrifice the spirit for the letter, and indeed at last to excite the ridicule of the public cartoonist.

The geography and history lessons of the primary school sometimes suffered from this excessive cultivation of language—this desire for form.

There was occasionally also, we thought, too much reliance placed upon the memory and not sufficient appeal to the experience of the child.

But in other schools, and amongst the best primary teachers, we found the principles of Herbart forming the foundation of the school curriculum. The best German teachers are generally Herbartians.

Even though it be a tiny country school one may notice the master's spirit there. The five formal steps of instruction are closely observed, and concentration and correlation of studies constantly kept in view.

The German primary teacher has been through what is practically a six years' course of training, and this training is deliberately designed not to be so much a broad as a deep one. Hence, in educational matters, the philosophy and history of education, and in all that appertains to the school, he is a past master, but foreign languages are not taught in the normal schools.

Foreign systems of education are, however, often the teacher's hobby; hence, we found that English acquired in the home was sometimes an accomplishment of which the elementary teacher was justly proud. One of his dreams was some day to visit the British Museum.

The German rural school begins at 8 a.m. in the summer months, and 8.30 a.m. in the winter, and goes on until noon, with five minutes' interval between each lesson and a quarter of an hour at ten o'clock. The afternoon session is from 2 to 4 p.m., but by a Government order if the thermometer stands at or above 25 deg. C. at 10.30 a.m. then no afternoon school will be held.

The length of the morning meeting varies according to the age and class. It is not unusual to see one class dismissed at ten o'clock, others at eleven, and the remainder at noon.

The children generally have home lessons to do, which a teacher assured us ought not to take more than half an hour. He admitted, however, that the children were overworked, for daily after school and on half-holidays they have to assist in

farm-work. Out-of-school employment is not uncommon in Rhineland.

In the secondary school the hours of instruction are from 7 a.m. to noon, and from three o'clock to six o'clock in the afternoon, but four half-holidays are given weekly.

But to these long hours must be added the time necessary for the home-work set. How many hours this involves it is difficult to say, for estimates vary. The intervals are as before mentioned.

This is the most serious blemish in German education. The number of lads wearing spectacles, the weary, pallid faces, often evidencing strong anæmic tendencies, are a mute but powerful reproach, and show that there is a dark, as well as a bright, side to German educational supremacy.

German children are always punctual; at least, we never saw a child come late to the public schools. It is a novel sight to see girls and boys trudging along the highway in their sabots, and an immense square knapsack covered with goatskin strapped on to their backs.

As for attendance, we made inquiries and saw several registers of absentees. These are some of the results. "Two per cent. all the year round is the number of our absentees." Another school of 460 children had 15 children absent, the reason being known in each case. In a class of 62 children three were absent, and on inquiry the monitors for each section of the class stood up and gave the reason—illness in each case.

In another class two girls were absent by leave of the class mistress to attend a companion's funeral. A reprimand by the head teacher was the immediate result of this unheard-of leniency, for, as he told us, the funeral must be completed by 8 a.m. and the girls could have attended at 9 o'clock. In a country school of 22 children one child only was, and had been, absent for twelve months; cause, illness.

In the secondary schools absence, except for illness, is unknown. German parents are too frugal to allow this waste.

The school law of attendance is so clear that it was on one occasion elucidated for our edification by the village innkeeper!

The schoolmaster sends the list of absentees to the Mayor, by whom it is despatched to the local head of police. This functionary orders one of his myrmidons to impose the fine and collect it there and then. There is no time for wriggling. If it is a bad case, then the policeman hales the offender to prison. The method is short, sharp, and, above all, effective.

In quoting figures on school attendance in Germany we must remember certain facts.

Children under six years of age do not attend school and are not on the registers. There are, in proportion to the population, many more schools in Germany than in England, so that the schools are much nearer the children.

The isolated homestead is almost unknown in Germany. We cycled many miles through some of the most populous districts of Germany, yet rarely saw a dwelling between the villages. The farmers all live together in the villages, possibly for mutual safety in time of war.

German children rarely walk any considerable distance to school.

At L———t, a village of 3,000 people, we found that in the centre of the village there was a large Catholic school. At each end were two small Protestant schools, one of them very much under-staffed. When we asked the master of one of these Protestant schools why they had not concentrated their resources upon one good school, as the Catholics had done, he told us that one school was much older than the other, but as the population increased and the village grew in length the parents objected to sending their children to the school at the other end of the village. This school was distant from their homes *nearly half a mile!* Their complaint was recognised and a new school built!

Many of the primary schools in the districts we visited are now free, but in the larger number fees are still charged. The children in all primary schools buy their own pens, books, paper, slates, etc. The girls' higher grade or middle schools charge a fee of 30s. per annum. The high schools or proper secondary schools for girls in Frankfort-on-Main charge from £5 to £7 10s. per annum. The Oberrealschule at Cologne for boys charges an annual fee of £4 10s., whilst the Gymnasien and Realgymnasien at Frankfort charge £7 10s. per annum.*

The average German considers his national system of education the finest in the world, and he more than insinuates that we should do well to try and follow his example.

But he does allow himself to admire some things even in the English educational system. A rural teacher said to us, "It is your continuation system that we country teachers envy—your University Extension movement, Mechanics' Institutes, and Evening Classes. You, at any rate, give young people in most country districts an opportunity of building up more advanced knowledge on the elementary course received in the day school, whereas we country teachers see our best pupils for want of mental nourishment gradually lapse into that primitive barbarism from which we tried to lift them. It is so disheartening."

Why is it that these national systems of education have so transitory an effect and are appreciated so little by the peasantry? Is it that the menu of the feast is not to their liking?

This, at any rate, may be said; the salvation of the rural child is not summed up in a knowledge of the three R's.

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* It is interesting here to compare the fees of the Welsh Intermediate Schools. "The highest fee actually charged in any school is £9; the lowest £2 2s.; the average being £4 15s. 8d." Annual Report Central Welsh Board, 1899.

In Saxony and other parts of Germany, as is well known, Continuation Schools are compulsory. Frankfort is about to follow the example. After 1901 every Frankfort child will have to attend a Continuation School for six hours per week until he has reached 18 years of age. They are now getting the courses ready and some of the authorities are already studying the work done by the great English School Boards in this direction. Amongst the subjects taught in these Continuation Schools are baking, locksmith work, and ordinary commercial subjects. The teachers are the day-school teachers, and they have to make themselves experienced in the work by actually attending at bakeries, locksmiths' and commercial houses in the city.

We propose now to briefly discuss the teaching of some of the subjects of instruction not yet touched upon.

Writing is rarely set as a specific exercise, and copybooks with headlines are unknown—"all the writing should be well done, not some of it," said a teacher.

And it is well done; of the quality of the German child's handwriting there can, we think, be no two opinions; it is uniformly good, and the only possible variation to our minds was the degree of goodness. The writing in German characters is generally better than in Roman.

In composition we were struck by the number of religious and patriotic themes chosen—some of the exercises, though showing distinctly morbid tendencies, were clever, and the ideas unusual for a child; we append a translation of one taken from the exercise book of a boy of 11 years of age in a rural Catholic school :—

"THE CRADLE AND THE GRAVE.

"The cradle and the coffin are both resting-places. The cradle, as well as the coffin, is made of wood, possibly even out of the self-same tree. Man is laid not only in the cradle, but also in the coffin. Parents lay their children in the cradle, and as a rule children lay their parents in the coffin. Into both tears are shed—into the cradle tears of joy, into the coffin tears of sorrow. At both there is hope. At the cradle people hope that the child will become a good brave man. At the coffin people hope they will see the departed loved one again."

But this is not always so, and even in the teaching of composition there is sometimes too little originality and spontaneity. We were told by a rural teacher that the teaching of composition in his school is begun by getting the child to commit portions of his "Reader" to memory. Thus he would take one portion of his class in oral work, whilst the other portion is committing some lines of the "Reader" to memory, and subsequently writing this on slates and then comparing this with the original.

During the reading lesson the blackboard and other necessary apparatus and material are always at hand. Each child has a book, and in the lowest classes uses a slate pencil for pointing

The class of 60 to 70 children is divided into sections. One of these stands up and reads a paragraph simultaneously in a curious sing-song. The others follow silently with their pencils *and lips.* There is very little expression observable. [We fancy the German teacher recognises the uselessness of looking for "expression" in children of six to seven years of age. What is obtained under such conditions is not expression but mimicry.] After this the whole class reads the paragraph simultaneously, and this is followed by individual reading.

What impressed us was not the method nor the results so much as the perfect handling of her class by the woman teacher. In these reading lessons we noticed that much stress was laid on correct articulation. The teacher would repeat a word or a sound over and over again—sometimes even calling upon individual children to observe the formation of her mouth and to imitate it. Then again in another reading lesson we observed the exaggeration of the intermediate or final vocables according as local pronunciation required special emphasis to be laid on one or the other.

These children we were told learn to read very quickly. Children, for example, who had been in school only four months read with fair ease the lessons in script character.

But they also get to know it by heart, for only about 20 pages are covered in the first six months.

To avoid this memorising a teacher had practised her class in reading *backwards*, much to the chagrin of the head master when he saw we noticed it. How small a world this is!

The reading seemed to us to lack vivacity, as also did the recitation, excepting in the big town schools. The German boy when well trained is not so self-conscious nor so sensitive to ridicule as are English boys; he is not afraid to "let himself go" in a pathetic or patriotic poem, and a rendering of the "Erl-King," which we heard by the first-class boys in a Cologne Volksschule, is a memory which we hope to long retain. There was a ring of true feeling in the boys' voices, which was readily distinguishable from the mimicry of a teacher, however well done.

Singing suffers from the same weakness. In the average school there is a lack of vigour, vivacity and sometimes firmness. There is a want of that verve, attack, and dramatic action which we in Wales, at any rate, are accustomed to look for in our school singing. Of course we heard in some of the best schools very fine singing, but this was the exception. Three-part songs are often heard even in small country schools. The tonic sol-fa system we found was quite unknown, and we failed signally in attempting to elucidate its mysteries.

The singing was often spoilt by the teacher not using a tuning fork—the pitch was too high or too low

All teachers are taught the violin at college, but few seem to care to use it. It is a troublesome instrument, but the only one in the rural school.

The exercises in note-singing which we saw were not par-

ticularly well done, but we saw very little of this, and still less of voice training, so that our impressions of this branch of the school curriculum are so vague as to justify us in laying but little emphasis on them.

The drawing in the primary schools was mainly from the flat; practically no model drawing is taken, and the work we saw was not of a particularly high order. Generally in country schools one hour a week is devoted to drawing and two hours to needlework. The girls, when they do take drawing, apparently confine themselves to diagrams for their needlework exercises, and these are of a somewhat elementary character, consisting largely in drawing along and through squares. The needlework is mainly of the "sampler" kind—we saw no garments worked, and very few specimens of darning and patching, and those not of a brilliant order.

Of the drawing in the secondary schools it is difficult to speak too highly. The room is specially fitted and designed for this purpose, with appliances for the requisite light and shade. The slightly inclined desks are very substantially built with a top about three feet deep.

Along the edge of the desk are movable stands, which may be raised or lowered, and upon this the object (different for each boy) to be sketched is placed. The three-legged stools are of various heights.

The work we saw was finely executed, and some of the designs very beautiful.

The collections of objects—classical figures, natural history specimens—and all the paraphernalia necessary for good teaching were ample.

Of the teaching of geography and history we have already spoken, but something remains to be written of Heimatkunde, or home-geography, and of the principle of cause and effect in geography teaching.

Much of the instruction in these subjects in the country schools seemed uninteresting and apathetic. There was too much formal question and answer, too little appeal to the child's experience, imagination, and emotion. Illustrations were not plentiful, and the blackboard was not as much used as we had expected. There was but little of the spirit of Carl Ritter in the lessons we heard, speaking generally, but there were noteworthy exceptions. In the town primary schools, however, we heard much to praise. The home-geography lesson was often very well done.

In a school at Cologne we heard a fairly typical lesson in Heimatkunde to a class of ten-year-old girls.

Teacher: What city do you live in?
Pupil: We live in the city of Cologne.
Tr.: What is the name of your school?
P.: The name of our school is the —— school.
Tr.: What street is the school in?
P.: The school is in the —— street.

Tr.: What do you see in the street?

P.: We see horses, carts, people, and also soap works in the street.

Tr.: To which gate of the city does this street lead?

P.: It leads to the —— gate.

Tr.: Yes. Now see I have drawn a plan here. Now tell me where does this street lead to?

P.: That street leads to —— [naming a small village near].

Tr.: Yes. Now how would you reach this village?

P.: We should reach that village by the tramcar.

Tr.: Yes. Have you ever gone another way to that village?

P.: Yes, we have gone there by the Rhine steamer.

Tr.: Oh, yes. I remember many of you have I think, been up the Rhine, so tell me what you remember.

The lesson then proceeds, the teacher gets the children to tell him what they saw on the voyage—the flat agricultural country up to Bonn, then the mountains of the Siebengebirge range, and culminating in the Drachenfels.

The children give in their own words the old legend of the Dragon, and the lesson drifts into legend and mediæval romance, and is concluded with a fine rendering by the girls in poetry of this old Rhine legend.

Thus the lesson begins in the class-room of to-day, and proceeds by easy transitions until it ends in early times on the side of the Drachenfels.

Another lesson we heard had for its subject the old Eschenheimer Tower at Frankfort. It was given by a master to a class of girls of nine and ten years of age.

The lesson was illustrated by a photograph of the tower and a plan of the city and its environs.

Teacher: Look at this photograph. Tell me what does it represent?

Pupil: That is a photograph of the Eschenheimer Tower.

Tr.: Why do we call it the Eschenheimer Tower?

P.: Because the road through it leads to Eschenheim.

Tr.: Yes, here it is on this plan, and we see from this that the tower forms part of the old walls of our city. Do you know any other towns surrounded by walls?

Cologne, &c., are given by the pupils.

Tr.: What do you call such towns surrounded by walls?

P.: They are called fortified towns.

Tr.: Why were these towns fortified?

P.: So that in time of war people could take refuge within the walls and the gates in the tower be closed.

Tr.: Were the gates always open except in time of war?

P.: No, they were closed at eight o'clock each evening, and the people who came late and wished to enter had to pay a fine of two marks.

Tr.: What do you notice about the style of building?

P.: We notice that it is composed of three parts: upper, middle, and lower.

Tr.: What do you observe on the lower part in the picture here?

P.: We observe that ivy is growing on it.

Tr.: Is it exactly like that now?

P.: No, the ivy is not so plentiful now as in the picture.

Tr.: Do you know the old saying about the ivy?

P.: Yes: "There shall always be strife in the land until the ivy reaches the top."

Tr.: Why is it that the city does not possess as many gates now as in old days?

P.: Because they are inconvenient and in the way of traffic.

Tr. Why do some people, then, wish to preserve the old city gates, and not pull them down?

P.: Because they are reminders (souvenirs—andenken) of the past.

Tr: Then why do you think this particular one has been preserved?

P.: Because it is so much prettier than the others were.

Tr.: Let me see how many of you have been in the tower? Yes. Now on what day may one visit the tower?

P.: One may visit the tower on Sundays.

Tr.: Tell me anything of interest you noticed at the entrance of the tower.

P.: I noticed a very large ring there.

Tr.: What else may still be seen up in the tower?

P.: A whimsical little head (Spasshaftes Köpfchen) may be seen there.

Tr.: Yes Listen, and I will tell you the story of this whimsical little head.

And amid breathless silence he sketches the legend, taking his pupils' minds back to old times and old customs, building with all the skill of a master-hand a pile of old-world lore around this whimsical head in the Eschenheimer Tower. The children may have heard it before, but it was evident that the story was as interesting to them now as if heard for the first time.

The spirit of Carl Ritter is more often met with in the geography lessons of the town primary and "middle" schools. Some of the best lessons we heard in "cause and effect" geography were in the girls' mittelschulen. Among other things we recall impressions on the effect of railways on the prosperity of a country and the dislocation of population often produced thereby; on which bank, and why, of the Rhine does the grape grow more luxuriantly; a lesson which consisted in a comparison of the physical features of the boundaries of various European countries and the effect of these on international communication and knowledge. Then other points brought out were the trend of German rivers to the north and west and the cause thereof; some of the causes (physical and political) for the growth and prosperity of the Rhine province. Books of views, often very fine, are passed along from one girl to another. Each

pupil has an atlas much superior, we think, to anything at the same price here, and the Readers which are used also contain very useful pictures and maps.

The history is almost invariably closely interwoven with the geography. In the primary schools which we saw it called for no special praise, and was too often, we thought, merely a mnemonic exercise. A teacher told us that his history is as far as possible based upon and of a similar character to that in the Readers—in fact, that the children practically commit portions of their Readers to memory, hence these long set answers we sometimes heard.

We heard several object lessons and nature lessons.

In the former generally no object was present. The educative aim of these lessons is obviously language exercise rather than primarily the cultivation of the child's faculty of observation.

In parenthesis we may again call attention to this contrast between German and British ideals and aims. One may say that language exercise and the study of languages is the weapon the Germans have selected out of the armoury of "mind-tools" for sharpening the wits of their youth, both in primary and secondary schools. The mother tongue in the primary school, ancient and modern languages in the secondary school, are the German teachers' "Excalibur."

On the other hand, in our best schools, both primary and secondary, probably stress is laid upon those elements in the curriculum which directly affect character, and which cultivate self-reliance and resourcefulness.

We fancy that this attention to language, which is a formal study in itself, has given rise to that set and almost stereotyped character which we sometimes noticed in the teaching of the primary school.

But to return to the object lesson; the picture of a street or country scene is placed in front of the class and the children are invited to state what they see there.

These pictures are well got up, and sold at one shilling each. The school generally possesses a large number of them, kept, when not in use, in a portfolio.

The answers must be given in a certain form and in complete sentences.

Here is a fairly typical lesson. The picture represented a scene outside a country inn. The male teacher had a class of about 60 little girls from 6 to 7 years of age. These male teachers generally have a very pleasant sympathetic manner with the girls.

Teacher: What do you see in the picture, Elizabeth?
Pupil: I see a manger.
Tr.: What is the manger made of?
P.: The manger is made of wood.
Tr.: How large is the manger?
P.: It is about two metres long and half a metre deep.
Tr.: What is eating out of the manger?

P.: A horse is eating out of the manger.
Tr.: What does the horse eat?
P.: The horse eats hay.
Tr.: Yes, but what else does he eat?
P.: He also eats oats.
Tr.: What do you see, Lily?
P.: I see an inn.
Tr.: Where is the inn?
P.: The inn is on the roadside.
Tr.: Whom do you see at the door?
P.: I see the landlord at the door.
Tr.: Come and show me the landlord; yes, now tell me to whom is he speaking.
P.: He is speaking to the waggoner.
Tr.: Yes; now, Marie, tell me, what you can see in the picture?
P.: I see a tree in the picture.
Tr.: Show me the tree—yes—tell me, where does it stand?
P.: It stands in the garden.
Tr.: Why do you think they planted it so near the house?
P.: They planted it there so as to give a shade.
Tr.: What do you see, Elsie?
P.: I see a waggon.
Tr.: What is it loaded with?
P.: It is loaded with stones.
Tr.: No, these are not stones, come and see—now tell me what it is loaded with?
P.: It is loaded with sacks.
Tr.: Yes; now, Marie, tell me, what is this here on the trough?
P.: It is a bird.
Tr.: Yes, but what kind of bird?
P.: I do not know.
Tr.: What, have you never seen a sparrow in the street?
P.: No, I think not. [Great laughter, in which all join, including the teacher.]
Tr.: Now who will tell me what is a sparrow?
And some of the answers were—

It is an animal.
It is a small animal.
It is a bird.

Tr.: Yes, it is a bird, but how do you know that?
P.: Well, because it has two legs.
Tr.: But so have you.
P.: Ah, yes, but I have not wings.
And so the lesson proceeds, the teacher keeping in this, as in all other lessons, the doctrine of "concentration" and interdependence of studies in view, and generally concluding the lesson by a short poem or song bearing on some incident touched upon in the lesson.

Both the German teachers and certain societies are doing all they can to inculcate a feeling of respect and love for dumb

animals in the children, and a picture lesson in which an animal is referred to is often wound up by a pathetic little poem that serves to "point the moral and adorn the tale."

We would now speak of the modern language teaching. We heard a good many lessons in French and English, in various kinds of schools, and in almost all methods. In a certain classical school we heard one lesson in French conducted in the old or classical style, and we mention this because there has been so much written about the new method of teaching languages in Germany that many English people must have come to the conclusion that if there ever was in Germany an old method as we now usually understand it, it must have been a very long time ago.

In this lesson some fifty or more lines of the French author were read and translated into German. The teacher then asked in German, questions on various grammatical points arising out of the passage read:—*tout* as an adverb; construction after *empêcher;* possibilities for *faites* as a word to be parsed. One very good lesson we heard began with grammar in the old style and ended with conversation in the new. It was given to a class of 36 boys in III.b., who had been learning French for rather more than three years. For the first two years they had had six lessons a week, and they were now having four.

Boys in the class were asked to name the infinitives of some irregular French verbs, and give the German meaning. These French infinitives were then written on the blackboard, and the master went through some sharp drill in the various verbs.

Give the French for: ich will kommen, wirst du gehen, dass ich lese, ich möchte sehen, etc., the master meantime pointing to the infinitive of the French verb in question. The lesson was then continued almost entirely in French. German was, however, not absolutely forbidden, for when the words *ailleurs, fils unique* did not appear to be fully understood, the master did not hesitate to supply the German word.

Questions were asked in French on the subject of the previous reading lesson and elicited the following answers:—

Nous avons lu le petit Pêcheur.
Le petit s'appelait Toni.
Il vivait dans un hameau.
Son père était pêcheur.
Le petit garçon avait six heures (laughter).
Le petit garcon avait six ans.
Il ramassait du bois sur la grève.
Il portait le bois à sa cabane.
Parcequ'il n'y a pas de forêts sur les côtes de l'A.,

and so question and answer continued.

We heard how his parents did not return as usual, how he prepared his supper, how he at last fell asleep, how he was rudely awakened by the soldiery, etc. An opportunity arose during the lesson for distinguishing ligne and linge. Voilà une ligne, said the teacher, drawing one on the blackboard, mais qu'est-ce que

c'est que du linge, and the answer was given in German, Wäsche. This point came up because one boy had pronounced linge as ligne. The boys were asked to explain in French what was meant by mettre le couvert, and pot-au-feu, and to distinguish between pot, casserole, and marmite.

The French was distinctly fluent and ready, and the pronunciation was exceedingly good, except in the case of a few consonants, where bois, boulet, and ongle were very suspiciously like pois, poulet, and oncle.

We heard a good many lessons on Hölzel's pictures, the method being practically the same as that used with the young children in the object or picture lesson, only now the language was French or English instead of German. The following is a typical list of the answers we heard in lessons on the spring picture given to children who had been learning French fifteen months:—

Le tableau représente le printemps.
Le printemps vient après l'hiver.
L'automne vient après l'été, &c.
L'hiver commence le 23 décembre, &c.
Au fond du tableau on voit des montagnes.
Les montagnes sont couvertes de neige.
Les montagnes de X. ne sont pas couvertes de neige.
Devant les montagnes, il y a un château moderne.
Le château moderne est sur une colline.
L'autre château est en ruines.
. . . . . est entouré d'un parc.

After a few more questions and answers the class stood up and sang "Au Clair de la Lune," and a French version of "Ich hatt' einen Kameraden." "La Cigale et la Fourmi" was then given as a recitation.

We also heard lessons in which questions were asked about the contents of the class-room—the door, windows, ceiling, number of desks, number of pupils present, &c. But the children seemed to find this rather dull and uninteresting; one boy confused plafond and parquet in such a way that it was quite evident they were mere words to him. Another looked up to the ceiling to try and recollect the French for window.

In an English lesson a pupil answered a certain question by saying that the chair was behind the desk, presumably because that was the usual answer to that question, and the fact that the chair had been removed for our accommodation was not allowed to alter the almost stereotyped answer of "The chair is behind the desk." This class of question seemed to lack scope, and the possibilities of varying it being quickly exhausted, the questions and answers were rehearsed so often that they were known by heart. Many of the answers were little more than a repetition of the question in the affirmative form, with the addition of perhaps one word. "What is there between the window and the door?" "Between the window and the door there is a desk." A good many questions were exactly of this pattern, and could soon

be answered quite mechanically. This method, though doubtless very good for beginners, seemed unsuited to a class such as we heard.

The method of teaching French, etc., from a picture is very good in that it makes the pupils realise the meaning of the nouns, verbs, etc., instead of merely associating them with a corresponding word in another language; and to a certain extent, too, this method makes the pupils think in the foreign language, but the result of such teaching may easily be more showy than real and is liable to deceive the casual observer.

He is liable to think the pupils are holding a natural conversation in the foreign language, and doubtless that is the goal aimed at, and with a very thoroughly qualified teacher the end achieved, but as far as we saw this was not the actual result. As a rule the answer was a slightly altered form of the question, or it had become a stereotyped one from frequent repetition, and the pupil often found it disconcerting to his memory to look at the picture; he preferred to look away.

In the English lessons heard, we considered the pronunciation and accent distinctly better than in the French ones, but the idiom was not always so correct.

We heard several simple English poems beautifully recited by girls in a Mittelschule. If they showed a lack of interest in speaking about the contents of the room, they certainly made up for this by the feeling and expression they threw into their recitation of "The Blind Girl" and "Come down, dear Bird," and we shall long remember their recitation of "Little deeds of faith and love" and "Work while you work, and play while you play."

One French class we heard gave us illustrations of all these various methods in turn.

The lesson began with asking for the names of various articles of furniture in the room, proceeding to the number of desks, number of pupils present, and then to Holzel's picture of spring, where answers were given almost identical with those mentioned above.

Then practice in *punir* and *vendre* followed. Short sentences given in German, such as *wir werden nicht bestrafen, wir werden nicht bestraft, wir werden nicht bestraft werden.* After giving out each sentence, the teacher with watch in hand, said, "I shall give you two minutes to think it out." The answers were almost invariably correct, but this part of the lesson seemed to inspire but little enthusiasm. "Could they recite any poetry?" we asked. "Oh! yes." One boy attempted "Le Paradis," but the experiment was only a qualified success.

The boys then sang "J'avais un frère d'armes" and another French song in a way that showed they evidently enjoyed this part of the lesson.

They then opened their text-books and translated into French an exercise containing short sentences of the type of "La Trémouille ist von Ludwig XII. mit Ehren überhäuft worden." Grammatical points were discussed in connection with each

sentence; in this particular sentence the auxiliary verb and the prepositions were the subject of remark.

We were very unfortunate in not finding Herr Direktor Walter in Frankfort at the time of our visit, and although his representative and all the masters in the Muster-schule showed us every courtesy and attention, yet in the matter of modern language teaching no one could adequately supply the place of the direktor himself, who has made this his speciality.

In Cologne, however, we heard several excellent lessons in both French and English given by Dr. Vogels, the head master of the new commercial school there.

One lesson in commercial French was given, entirely in French, to a small class of students, 17 to 19 years of age, one of whom was an English boy from Hampstead. First came a recapitulation of what had been done in the previous lesson. The lesson for the day was then proceeded with. It dealt mainly with letters and bills of exchange. One or two German business letters had been prepared as home-work and these were now orally translated from German into French. Then books were closed and questions were asked in French on various points arising out of these letters. Give the French for such and such a phrase. Mention several common ways of ending a letter in French. How do English people usually end theirs? What difference do you notice between the two styles? Supposing you were a clerk in an office and your stock of envelopes had given out, what would you say to a fellow-clerk if you wished to borrow one from him?

Many little odd points were taken advantage of to give life and freshness to the lesson and to prevent it from becoming dry or formal.

One youth had to explain why he was absent from the previous lesson, another why he was wearing a particular bandage. Was it anything serious, and what remedies was he adopting?

Our presence also led to an explanation in French of who we were, where we came from, and what our object was in coming. It also gave point to two letters which were to be written according to certain detailed instructions.

A letter was to be written to a merchant in Swansea, enclosing draught on Baring Brothers, London, and the necessary intimation had also to be sent to Baring Brothers that they were being drawn on for so much at such a date.

These letters were very satisfactorily drawn up orally in correct French, and written versions of them would be required for the following lesson.

The accent in this class was beyond suspicion and the lesson itself left nothing to be desired. We were quite delighted with all we saw and heard.

We were equally or perhaps even more pleased with two lessons we heard Dr. Vogels give in English.

We will describe one of these lessons somewhat in detail. The class consisted of ten boys of 15 or 16 years of age. They had been learning English for 18 months, but only 5 months with

Dr. Vogels, and before he took them they had had no practice in speaking English.

The subject of the day's lesson was to be Scotland. It was really the repetition of a lesson given three weeks before. A map of the British Isles was hung up on the blackboard, and a conversation between master and pupils followed. The lesson had evidently been very carefully worked out, and one question led on so naturally to another that we almost forgot it was a lesson in English to German boys. It seemed far more like a most interesting lesson in geography given by an Englishman to an English class, so full of interest was it, and the pronunciation of both master and boys was so good that one could be pardoned for making the mistake.

Dr. Vogels explained that his system of teaching pronunciation in both French and English was entirely based on phonetics. No mistake in pronunciation, however slight, was allowed to pass uncorrected, and on one occasion a boy was made to come before the class and re-pronounce some particularly difficult word, Dr. Vogels meanwhile holding the boy's chin, so as to make him move his mouth in the required manner, saying, "Pull your jaw down, boy, and make your face long like an Englishman's." The lesson began by fixing the boundaries of Scotland, then came the physical features, Highlands and Lowlands, the two races and the two languages, the towns and manufactures, points in history or literature being touched upon here and there. "I endeavour to make the lessons interesting and real," said Dr. Vogels. "I describe what I have actually seen myself, and so the boys take a keen interest in their work." We may mention, as an instance of this, that when speaking of Glasgow, Dr. Vogels asked, "Have you ever been for a trip on a Rhine steamer?" "Yes, sir, I have." "Did you look down at the machinery of the boat?" "No, sir, I did not." "Well, if you had done so, you would probably have noticed that the boat's engines had been made in Glasgow. Now, you will know what one of the industries of Glasgow is."

The mention of Duncansby Head naturally led the conversation into an historical channel. The whole story of Duncan and Macbeth was then told by the boys. Shakespeare's play was mentioned, and so the boys were asked to take a steamer from Glasgow and sail down the coast of England and Wales, and up the Bristol Channel and up the Avon to Stratford.

Towards the end of the lesson, one boy of 14 gave a very finely executed recitation of "My Heart's in the Highlands." The poem was then analysed, and some idea of its author's life and age were deduced from its contents.

During the whole lesson Dr. Vogels had kept a particular point of grammar in view, when he framed the questions and guided the conversation. What this was, did not appear until quite the end, and then when the grammatical point was revealed as the English prepositions, it was found that instances

of all the common prepositions could be supplied from the earlier part of the lesson.

This had been a most admirable lesson, but at the end we could not help feeling that the lesson had been given by an unusually gifted teacher, and that in the hands of one less gifted it would have lost half its effect. The main outlines might have been the same, but the finishing touches, which show the hand of the real artist, would have been missing, and consequently the effect produced on the pupils would have been quite different.

What we admired most was the freshness of the lesson; there was nothing set or formal, everything seemed so natural. Such lessons must prove most exhausting to the teacher, and such teachers are born, not trained.

All the modern language teachers employed in secondary schools of the city of Cologne are in turn to be sent abroad to acquire in England or France the correct accent of those languages. The expense is defrayed out of the city chest.

Dr. Lüngen, Stadtschulrat, Frankfort, had been head master of two large mittelschulen for girls before he was made inspector of schools. He naturally takes a very keen and enthusiastic interest in the education of girls in Germany, and he has thrown his opinions into pamphlet form. This is published under the auspices of the "Frauenbildung-Frauenstudium" Verein.* He complains that outside Prussia there is a lack of interest taken in the education of German girls.

There are in Germany 300 high schools for girls, of which 200 are in Prussia, but of these 200 Prussian schools only four are State-aided, whilst for boys there are in Prussia 250 such State-aided institutions.

Dr. Lüngen also states that there is not adequate provision made for the training of women who are to teach in elementary schools. There is an insufficiency of training colleges. Many such women teachers are therefore drawn from the ranks of those who have been trained for higher-school work, but who have failed to pass the qualifying examination in all subjects. Moreover, he says that men who teach in girls' schools have not the same standing as those teaching in boys' schools.

In one respect, however, girls seemed to us, possibly owing to this smaller public interest taken in their education, to enjoy an advantage over their brothers. They are not so worried either at home or at school about lessons, and when the play hour comes they seem to have far more vitality than the boys. In the common playground of the primary school we frequently saw the girls singing, skipping, and generally enjoying their numerous ring-games, whilst the boys slouched about and looked on.

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* Knabenerziehung-Mädchenerziehung. Ein Vergleich, Frankfurt a/m, 1898, Moritz Diesterweg.

The following is a translation of the first verse of one of these ring games:—

Children, let us choose
What work we wish to do,
When our school days are o'er.

Make a circle quick.
Now let us stand within,
And each one say in what way
She wishes to earn her bread,
For work wards off want.

Anna, take three steps forward
Into the ring; stand straight and firm,
And quickly give your answer to the question.

ANNA: When I leave school, I shall be a seamstress.
I shall make long dresses and also children's clothes.

CHORUS: Ah! we are pleased that you intend
To make long dresses and also children's pretty clothes.

Other verses follow, in which a child chooses to be a cook, nurse, teacher, etc.

The German teachers and officials are proud, and we think justly proud, of the discipline in their schools.

They have evidently not a very high opinion of the discipline in English schools, of which, as we have already pointed out, the private venture is the type they know best. But, as we told them, the national ideals vary here again. We saw canes in two or three schools, but not in use. We believe that the cane is very rarely resorted to; it is not necessary. A German child sucks order and obedience to constituted authority in with his mother's milk. Discipline has become a national habit, and we verily believe it would be as difficult for a German child to be insubordinate in class as it is for an English boy not to be. More than all else let it be remembered that the German child is never made the subject of experiments by pupil teacher or newly fledged graduate.

There can, we think, be no two opinions as to the excellence of the discipline in these primary schools; and this is, we are convinced, due not to the rod, but to national habit and hereditary tendencies. These children are not cowed, though so orderly.

A mere verbal reprimand from her mistress brought a flood of tears to a little girl's eyes. The head master of a large school introduced us to his lowest class of boys, and asked the boys if they had anything to tell him. One bright lad of six years held his hand up, and amid the hearty laughter of the whole class said, "I would like to shake your big paw."

A large class of little girls about seven years old was being taken by their mistress in a reading lesson—for our edification.

We are all engrossed in our work when stealthily the door is opened, a curly head appears, a wild rush to one of the desks follows, and then we see the little stranger hugging her bigger sister, for whom she is waiting, and all this to the intense delight and hearty laughter of the whole class. But it is quickly over and the reign of law is resumed.

We once saw what would be considered a somewhat unruly class in a secondary school. The subject was drawing, and the master had actually to speak to the boys afterwards as to their conduct whilst he was engaged speaking to us. But the whole thing was a very feeble attempt at revolt, and would hardly have aroused the enthusiasm of a Public School boy.

The fact that all the masters in the various schools have served their time in the Army, and that many are officers of the Reserve, is not without visible results in the discipline of the class-room.

On the entrance of the master all the pupils rise, and do not resume their seats until he is seated, or until they receive the word of command.

A boy is asked to clean the blackboard or to write something on it. He loses no time, but trots lightly up to the board, performs the task with smartness and despatch, and quickly but quietly skips back to his place, very much as one sees an orderly run up to his commanding officer, salute, receive orders, and go off at a run.

Very naturally, this is still more evident in the gymnastic exercises, where, for instance, four boys at the word of command run from the ranks, place the parallel bars in the required position, and quickly rejoin their ranks, all this reminding one very much of the way artillerymen serve their guns.

Even the weekly bath shows this. The performance is divided up into definite stages, and each stage proceeded with at the word of command.

Thus the Army affects the school discipline, and the school discipline in its turn prepares the boys for their future service in the Army.

The Kindergarten, though a product of Germany, has not developed there so freely as it has in America or even in England. The child is not of school age until six years old, and in the rural districts nothing is done, except perhaps in the home, to bring good influences to bear on what are often after all the most impressionable years of a child's life. In Frankfort a private society has done, and is doing, much for these little ones, both rich and poor. The poor children are supplied with a mid-day meal for a penny a day.

We will describe briefly a visit to one of these private Kindergartens in Frankfort. The head mistress was Fräulein Ella Schwarz, and most obliging and kind we found her. We tran-

scribe our notes written at the time:—"There are about 40 children present to-day, in winter about twice as many. This society supports three schools, two for the children of poor parents and one for those of rich. The hours of school are from nine to twelve in the morning and three to six in the afternoon. As the children come in, they walk up and shake hands with the mistress. We saw the time-table of the pupil-teachers—*i.e.*, girls who are qualifying as nursery governesses or Kindergarten teachers. The former class are taught laundry work, as that is a *sine quâ non* for the post of governess in German families. These pupil-teachers never teach, but only watch the properly qualified instructors teach. The children are in three classes.

"In the study of number, five is the limit for the first-class children. No writing is taught, but only drawing, and no reading from books is taken. Slates of the usual Kindergarten type are used. The teacher showed us specimens of the work done in crocheting, embroidery, mats [for number and colour], beads, &c. As specimens of manual skill these would not compare favourably with what one often sees at home, *but*, as the teacher says, they are utilised as educative instruments for developing mental and not as so much manual dexterity.

"'Our first lessons,' said she, 'are taken up in teaching the children to distinguish between one and two, long and short, broad and narrow, hard and soft, &c.'"

The time-table for pupil teachers includes one hour daily, 8 to 9 a.m., for studying the philosophy of the Kindergarten.

Both the head teacher and her first assistant strike us as being singularly able and sympathetic teachers. No time-table is drawn up for the school instruction, only a syllabus.

As little formality as possible is introduced, but the lessons are all arranged on the "concentric" system. For example, the teacher showed us some flax-plants in the garden which the children themselves had planted and watered. These plants were now about 2½ feet high. The flax plant had been the subject of a song and a poem; they had gathered its leaves, pricked and embroidered designs of them, and had used the leaves for counters in a number lesson. They had drawn them on their slates by laying the leaf on the slate and making a point at each end, then a straight line was drawn to join these two points, and the outline of the leaf completed.

Another set of lessons centred around the beehive kept in the school garden and the wax obtained from it.

We were shown little wax candles which the teacher had made in front of her class from the wax obtained in this way.

The class-rooms here are very similar to ordinary large rooms in a private house; in fact, the intention is to have everything as like home and as unlike school as possible. The walls are papered with very pretty patterns, and the room is bright and cheerful.

The children sit at low tables, five on each side facing

each other, and each table is a class—*ten children to one teacher.*

The playground is covered with sand, and at one end is a sand-pit, which is evidently the *El Dorado* of the children. At the further end of the playground is a shed with no sides, and under this are placed tables and seats, so that the children may work in the open air. Many of the children were busily at work in the sand-pit when we arrived, others were playing at ball with tennis-racquets, whilst the boys somewhat aimlessly (as boys will) wheeled barrows of sand here and there. *Every child was busy*, and so were the teachers—watching and guiding them. Everyone seemed thoroughly happy, though the thermometer was above 90.

The girls had little aprons on and the boys had also a kind of apron or over-all.

The mistress called them, and they marched in three abreast to the "*eins, zwei*" of the teacher. We saw the first class at "Rings." These were served out from a tin can by the teacher, five at a time, some complete rings, others quarters, and others halves, some of them being large and others small. The teacher in a quiet conversational way told them what to do. They then proceeded to produce the design required. The teacher did not make a design herself, but walked around the table correcting mistakes and chatting with her pupils. "We have a difficulty," said she, "in getting the children to distinguish between left and right. They watch the designs of their companions opposite, and feel that theirs should be collaterally like his instead of its image. It would be better for some lessons if they sat in dual desks."

She next told one of the children to make a new design, and this the others copied. The lesson was concluded by a competition—each child to decide for himself as to his design—and "let us see whose will be the prettiest." There was a "good think," and then they set off each after his own heart. The winner was an artist's son, and a very beautiful design it was, though a pretty little Jewess ran him very closely.

Whilst this lesson was on, the youngest class (including a visitor of the mature age of two years) was busy at "mats." No needles were used, but stiff cardboard slats and large squares. In another room a class of ten children was playing the "ball" game, which is an exercise for teaching "time" to children.

The children sitting opposite each other throw a coloured worsted ball back and fore across the table to time, the time being given by the teacher's song

We were told that much difficulty is experienced in getting children to appreciate "time."

After this the tables were cleared away and all the children gathered in the same room to play games.

First they marched round in twos to the music of a song, the bigger children being interspersed among the smaller ones, and

the teachers here and there in the train. Then came a round game called "The lost pussy."

The afore-mentioned little Jewess goes to a corner and hides. Another little girl enters the ring. The children all sing a doleful tale of pussy's departure.

The little one in the ring hunts everywhere (even amongst the gas jets) for dear pussy and promises in her trouble all sorts of nice things for pussy. Pussy, enticed by these promises, returns, and all "live happy ever afterwards." Then a boy becomes pussy, but he sets everyone roaring with laughter as he occasionally forgets his rôle of pussy and assumes that of a doggie.

The teachers are most energetic, and the sight of a glass of water which one of them sent for, sets all the throats thirsting. "Yes," said the head teacher, "the sight of a glass of water always makes them all thirsty."

After this the children catch each other's tails, and with fearful whistling the train starts off for the garden, where they play until it is time to go home.

The children appeared very happy, and although some of them are much petted at home, yet they soon shed this here. [The teacher pointed out to us a little lad, badly scratched, the victim of a badly-reared offspring of a foolish mother. "Those home pets," said she, "are always the unhappiest children in school."] Two points impress us—

1. The small size of the classes.

2. The (apparently, at any rate) exhausting character of the teaching.

We also saw a good example of a special school, namely, a Trade (or Fach) School.

This school was built and is administered by the municipality. It is located in one of the most fashionable suburbs of the city. The instruction covers repoussé work in iron and copper (and very beautiful artistic work we were shown), mathematics pure and applied, and art subjects of all kinds. We saw no manual instruction in wood, nor any evidence of practical work in science.

The rooms for the art classes were most elaborately and richly fitted up with every contrivance possible.

The busts and models in plaster, relief castings, &c., classical and other figures, were scattered in profusion. In another portion of the building were to be seen models of all kinds of machinery and engines. No practical science is taught. The school is apparently purely a trade school where young artisans of 18 to 22 years of age come to receive the technical training necessary for their trade, and for this purpose the school is admirably suited. To the educationist the lack of a "culture" basis in the instruction—the avowedly commercial character of the training—comes as a painful shock, but after all what is to be done in these latter days when apprentices are no more?

The school has about 300 pupils in the summer and double that number in the winter.

The commercial school at Cologne is at present in temporary buildings. The instruction is mainly in modern languages, but science and commercial subjects generally are also taught.

The director, Dr. Vogels, has been a master in English schools and speaks English with great fluency and ease.

We had several interesting conversations with him. "These commercial schools of ours," said he, "are more or less an experiment—we are groping somewhat in the dark, our sole guide in this as in so many other branches of education being Saxony. We wish to retain all the best, all the character-forming elements of the old classical training, but we want to do that with modern languages, and at the same time give our boys an education leading up to their future business in commerce. We lay special stress on modern languages, German, French, and English, and these we teach the boys to speak. We saturate them with the foreign spirit; we try to make them breathe, as it were, the foreign atmosphere, so that when they go abroad they will not feel lost, but, like a returned wanderer, will recognise landmarks and landscapes that they have long been familiar with.

"Later on, as our numbers grow, we shall have classes in Russian, Spanish, and Italian. Our numbers at present are 250, but I anticipate that our complement of 600 will very soon be reached in our new building."

That Dr. Vogels' anticipation will soon be realised we feel sure. We would here thank him deeply for his extreme courtesy and kindness in placing himself at our service, and in many ways making our stay at Cologne much more pleasant and profitable than it would otherwise have been.

There is much to admire in this system of German education much that may at first sight make an Englishman despondent, much at any rate to think about.

The beautiful symmetry of the structure, the lack of friction and of duplication of parts in the working of the machine, appeal to our sense of beauty and economy.

After all, however, nations do not work out their salvation in the same way.

It would be unwise, even were it possible, to transplant the German system to England. It would not suit us—it is not in harmony with British characteristics. The uniformity, the very perfection of the machine, would probably prejudicially affect some of those national characteristics of which we are most proud. For national systems of education, if in any sense flourishing, are indigenous to the soil. They have originated amongst the people, and they will grow only so long as their nutriment is derived from the same source.

Still, there are *some* things we can do, some objects we can attain (in our own particular way, perhaps) which have been attained

in Germany. It is true that organised primary education is over a century old in Germany and not thirty years old in England, and that allowing for this we do not compare unfavourably with them even in such direct educational products as regularity of attendance and public spirit. These will come to full fruition here as there; this is as certain as it is that the iron succeeded the stone age.

We would here sincerely thank all the teachers and officials we met. It is impossible to differentiate where all were equally courteous, kind, and hospitable.

R. E. HUGHES.

W. A. BEANLAND.

Swansea, October, 1899.

APPENDIX.

Comparisons of national systems of Education, even when the conditions are similar and the data unassailable by criticism, are often misleading and unsatisfactory.

We cannot, however, avoid, in our minds, at any rate, instituting a comparison between this system we have described and our own system at home. We would, however, lay no special stress on this comparison which has been made more for our own satisfaction than aught else. It may interest others. The figures are not above criticism, but they are the best we could obtain, and at any rate give some idea of the direction in which we are moving.

Wales, by its possession of an organised system of secondary education, offers a basis of comparison. But let us first note some of the factors to be considered in instituting such a comparison.

Whereas the system of organising secondary education found in Germany is nearly a century old, that of Wales is not yet ten years old.

Again, Wales is in the main a very poor agricultural country, where the principle of bringing the schools to the pupils has been deliberately adopted. Germany has many wealthy industrial districts, and rural secondary schools of the type known in Wales are unknown.

In the Kingdom of Prussia there is one school to every 45,767 of the population, in Wales one to every 22,330 of the population.

Again, Germany offers a very tempting premium to parents to send their boys to a secondary school, namely, the one year's exemption from compulsory military service, with its many attendant social privileges and advantages. Wales, on the other hand, can offer little but the philosopher's maxim of education for its own sake.

Moreover, it must not be forgotten that, in Germany, entrance to every form of professional calling is much more dependent than in this country on the candidate's producing evidence that he has passed through a specific course of secondary education.

Yet with these differences the numbers actually attending the public secondary schools in each country are as follows :—

—	Per 1,000 of population in Secondary Schools.
* Prussia [boys and girls]	7·8
Baden [boys only]	6·6
† Wales [boys and girls]	3·5

* This figure does not take into account all those at private secondary schools.

† This number includes only the pupils of schools administered under the Welsh Intermediate Education Act.

The Duchy of Baden, having a population about the same as Wales, has 60 secondary schools, whereas Wales has 88 intermediate schools. It is interesting to note the diversity of type found in these secondary schools of Baden.

Thus :—

Gymnasien and Realgymnasien } 22
Ober-Realschulen and Realschulen } 17
Höhere Bürgerschulen 14
Höhere Mädchenschulen 7*.

The following figures for the year 1898 have an interest to Welsh people.

County.	Number of pupils per 1,000 of the population receiving a Secondary Education.
Merioneth	9·3
Montgomeryshire	6·5
Cardiganshire	6·4
Carnarvonshire...	5·1
Pembrokeshire	5·0
Breconshire	4·4
Flintshire	4·3
Swansea...	4·2
Denbighshire	4·0
Anglesey	3·4

* As a matter of fact, the diversity is greater than is here indicated, for there are actually eight types of secondary schools included in the 60. See "The Higher Schools of Baden," by H. E. D. Hammond, Vol. III., Special Reports.

County of	Number of pupils per 1,000 of the population receiving a Secondary Education.
Carmarthenshire	3·3
Newport	3·3
Radnorshire	3·1
Glamorgan	2·9
Monmouthshire	1·6
Cardiff	1·4

For North Wales as a whole the figures are 5·1, and for South Wales 3·0.

The position of Cardiff is largely explained by the fact that the school for boys has only been commenced within the last eighteen months.

The figures are full of encouragement and promise. Would that the length of the school lives of the children compared equally satisfactorily. But whereas the minimum school life of the secondary pupil in Germany is six years, that of the Welsh secondary pupil is probably under three years. On the other hand, it must be stated that the educational ladder (in so far as that may be an ideal) is much more complete in Wales than it is in Germany.

The number of children who pass from the primary school to the secondary school in most parts of Germany is very small, particularly from the rural elementary schools.*

In the town primary schools it is true one often notices that the higher classes of the school have a larger proportion of girls and *poor* boys than the lower; for many of the secondary schools have no preparatory school attached, and hence draw their scholars from the lower classes of the primary school.

In Wales five out of every seven pupils in the secondary schools have proceeded from the primary schools, so that there can be no doubt that the educational ladder is much more complete in Wales than in Germany, and the opportunity for poor men's sons to reach high and honourable positions is certainly to-day greater in Wales than in Germany; and this is a characteristic of the system of which Wales may reasonably be proud.

* "The elementary and secondary schools [in Germany] are quite independent of each other . . . not one boy in ten thousand finds his way from the highest class of the elementary school into the Gymnasium.' Russell's "German Higher Schools," but compare "Problems in Prussian Secondary Education for Boys," by M. E. Sadler, Vol. III., Special Reports.

Finally, let us compare the secondary teachers' salaries in the kingdom of Bavaria and the Principality.*

WALES.		BAVARIA (Men only).			
—	Average Salary.	—	Initial Salary.	Increase every 5 years.	Maximum after 20 years.
Head Master ...	£272 10 10	Head or Director	£246	£18	£300
Head Mistress ...	£227 6 0	—	—	—	—
Assistant Master	£117 19 2	Assistant Master or Professor	£186	£18	£261
Assistant Mistress	£98 4 0	Higher School Teachers' Gymnasiallehrer	£114	£9	£177

It should be added that the Bavarian teacher is entitled to a pension of three-quarters of his salary after thirty years' service. After twenty years service the quinquennial increase is £9.

* From last report of Welsh Central Board and Appendix D. of Dr. Russell's "German Higher Schools."

THE CONTINUATION SCHOOLS IN BERLIN.

Amid the developments of civilisation among the nations the idea of the Continuation School is making its way with increasing strength. Urgently required by the conditions of social organisation, and in its turn acting on them, the new institution appears in many forms.

It claims its place side by side with the Church and the School.

Among the great number of those who enter early on the practical business of life, to whom the Primary School has only given a meagre education, there awakens, sooner or later, the desire to share in the stores of knowledge which human intelligence has won, in the insight into the working of the forces of nature, which it has acquired and applied to industry, in the arts which ennoble and support human action; in short, to participate in the spiritual treasures which are, as it were, the birthright of those born under a luckier star. This desire, which opens to the diligent the way to material prosperity and inner contentment, secures for society as a whole an important incentive to industrial progress, and turns the discontent of the slaves of machinery into the happiness of men conscious of their own success. The more the old order changes which held the workpeople in the narrow bonds of tradition, the more is customary prescription replaced by education and independent judgment, by insight into existing conditions, by special excellence within a particular sphere. For this reason, the Elementary School, however efficient and methodically correct its action be, cannot suffice for the happiness of the masses, nor for the preservation of society. The instruction must come into close contact with the life of the future citizen, and must be at the command of everyone desirous to learn, as long as he seeks it. But the seeker, born amid such conditions as these, needs guidance. Public libraries, newspapers, magazines help him the more he pushes forward, but without expert assistance he hardly finds the beginning of the path.

This is the object of the Continuation School.

The first step towards its realisation is taken when the need is recognised and the opportunity seized to learn and to teach whenever it offers. The movement is thus started.

The Continuation Schools of France are in this stage. "*L'École du soir est devenue l'école expérimentale,*" says M. Petit. Quite so; with enthusiasm the ground is prepared on which a permanent building can be erected, and if it is possible to arouse this enthusiasm again and again much can be done for the spread of culture; *e.g.*, lecture courses, such as are provided by the University Extension, or by the Humboldt Akademie, which has existed for many years in Berlin. The success of such efforts will be principally felt by the cultured classes, but it is not possible in this way

to secure a regular organisation providing for the wants of the masses of the people, particularly for the industrial workers.

There has long been, however, a conviction, though perhaps not shared by all classes, that a continued education is of especial benefit to such workers. The connection of the new organisation with the primary school was all the more natural when attention was directed more and more to those whose school attainments were insecure. But the form of the new institution, which was to include persons of very varying ages and from the most diverse callings, could not be determined out of hand. Not the least difficulty to be overcome was the attraction of young and old alike, and the separation of the eager candidates for knowledge into suitable divisions.

Three principles have contributed to the solution of this problem—free choice between the courses provided; free enjoyment of the preparatory courses without fee, and the selection of the teachers according to their attainments in a particular branch and their ability to adapt their instruction to the needs of the pupils or participants in the courses.

Before we show how these principles are the result of a long development, and how they have fashioned our Continuation Schools, we must say a few words about the compulsory Continuation Schools, which are now considered indispensable by many educationalists, warmly recommended by administrative authorities, and introduced by legislative action into certain States and towns. These schools are to be attended by such young people between the ages of fourteen and sixteen or fourteen and eighteen as cannot show that they have already attained the highest standard of the Continuation School, or that they are attending some other school of a similar or higher grade. Non-attendance is punishable by police regulations. The curriculum is prescribed and occasionally adapted to the occupations of the pupils, and generally assumes four to six hours of instruction a week. Special stress is laid upon the ethical influence on the pupil. This institution constitutes a prolongation of compulsory school attendance in two directions; it compels the pupils to learn and the parents (or principals, or employers) to give the apprentices (or employés) the necessary free time. In some cases, as in Bavaria, where compulsory school attendance only continues till the thirteenth year, such an institution may prove useful, and in cases where it is not possible to introduce the real Continuation School the obligatory Continuation School must be accepted as a makeshift. But it is not the ideal of the Continuation School —this is not the prolongation of compulsory attendance. A lasting effort towards further development can only be secured through increasing knowledge, through a growing independent exertion of the will, through the oft-repeated experience that knowledge and the ability to use it profit a man inwardly and materially, and thus the result is obtained that attendance at the Continuation School lasts far beyond the period of apprenticeship.

In what manner has this idea been realised by us? The experience of two previous attempts lay before us.

A hundred years ago an association began to provide instruction on Sunday afternoons for such apprentices as had not brought the requisite knowledge with them to the shop. It was a matter of reading, writing, and arithmetic. The regulations then existing permitted such apprentices to be compulsorily brought to the "Free Sunday Schools." When the power of the trade guilds was broken by the "Gewerbeordnung" of 1869 the principle of free choice gained due recognition. The association attempted to carry on its work under the new conditions, and, lo and behold! out of the schools for neglected apprentices grew up the Elementary Continuation School, with its varied curriculum. Some fifty years ago the Municipality took action. It founded three Continuation Schools, held in the rooms of three Elementary Schools on Sunday mornings between the hours of 8 a.m. and 1 p.m. A many-sided curriculum was planned—reading, writing, arithmetic, German composition and literature, modern languages, natural science, political and legal science, drawing, and book-keeping. The instruction was free to the apprentices; others were charged a fee of 50 pf. (6d.) a month. The right beginning was made, but at first the enterprise met with small success. The art of attracting and retaining free students was lacking, as well as the art of suitably arranging the curriculum and the time-table; and, finally, there was little demand for such schools among the general public.

A new plan was started in 1873. The Town Council instituted in certain higher schools, where success seemed probable, Continuation Schools for scholars who had passed through the top class of a Primary School. A large number of courses was provided; but the courses were to be held only in the winter, not in the summer. The young people who desired to remedy defects in their school education were left to the care of the association above mentioned. It was intended to create "Preparatory Schools," *i.e.*, such schools as should prepare their pupils for attendance at Continuation Schools. These institutions were to be connected with the Elementary Schools. Experience has shown that in this plan a principle sound in itself was surrounded by prejudices, which in a short time it dispelled.

The co-operation of the association and the Town Council was fruitful in results. Though the association did not command large means, the activity of its members did much to awaken sympathy, and the relations which it maintained with the guilds produced the Technical Continuation Schools, which were an offshoot from the "Preparatory Schools." The restriction of the instruction to the winter months proved unsuitable, for the institution thus retained the character of a makeshift—a nucleus of regular pupils could not be formed.

After a very few years, when drawing began to be greatly in request, the instruction was continued during the summer months. Other courses followed. The least satisfactory feature of the scheme was the division into Preparatory and Continuation

Schools. The Elementary School, which knew its former pupils and how to handle them, retained them; the Preparatory Schools became well-attended Continuation Schools.

A period of real progress followed. Special attention was paid to the instruction in drawing. It was sought by means of well-chosen teachers to bring it to a higher level. The State intervened with its assistance. It was felt to be a matter of importance to secure some institution which might control methods and serve as a nursery of suitable teachers. The Gewerbeschule at Hamburg, which under its Direktor O. Jessen had reached a high pitch of perfection, served as a model. The plan of founding a similar school at Berlin received the support of the State, both by money grants and still more through the steps taken to win Herr Jessen for Berlin. The institution was called the "Handwerkerschule" (School for Artisans). It had not been easy to secure the support of the parochial authorities. The majority of the Trade Guilds were opposed to it. They feared (and justly so) they would lose their leading position. Prejudices and apprehensions of over-education of the apprentices made themselves felt. When the question had been finally decided, the Handwerkerschule began its work in October, 1880; it served to set the standard for the drawing instruction in the Continuation Schools; it found efficient teachers among prominent industrialists and artists; and while the school itself increased in numbers beyond expectation, the Continuation Schools were also better attended. It retained, as did the Continuation Schools, the principle of non-compulsion, but amid this freedom it succeeded in maintaining strict order and discipline; and pedagogical tact, the first requisite in matters of discipline, has been so developed by the school (with the Continuation Schools following in its wake) that the pupils remain for many years true to these institutions, which are attended more and more by older pupils, assistants and master workmen. Attention must here be called to the fact that the "Handwerkerschule" had a predecessor in the educational section of the "Industrial Museum"—now the "Industrial Art Museum," which from the point of view of Art, was an institution superior to the Handwerkerschule, whose aims were more directly shaped towards practical ends. Founded by a private Association in 1867, and actively supported by the Crown Prince and Princess, this institution had at first (and indeed up to the time of its absorption by the State), but small means at its command. It received, however, in 1870 considerable support from the town, viz., the interest on a sum of 300,000 marks (£15,000) from a fund created by the municipality, in honour of the hundreth anniversary of the birthday of Friedrich Wilhelm III. At the present day this sum plays only a small part in the ample budget of the Royal Institute; but the real result then achieved, the co-operation of Municipality and the Industrial Museum, has remained to succour the Continuation Schools The mutual help of these two institutions, working together for the same ends has become an event of the greatest importance, for in the same manner as here Association and Municipality co-

operated, and later on State and Municipality, so for the whole of the wide and constantly increasing field of Continuation Schools the principle has been adopted and put into practice, of bringing together all disposable forces, intelligence, knowledge, powers of work, and financial means from Associations, Institutions, Trade Unions, and Private Persons, from Central and Local Authorities, from School and Academy, so that by means of Art and Learning and through increased energy the degree of culture and prosperiy might be raised and made secure. The more successful this movement is, the wider circles it embraces, and herein lies the secret of its success. Let us follow the Handwerkerschule a step further.

It was primarily intended to be a Drawing School for those engaged in different industries, and an institution teaching such subsidiary sciences as Mathematics, Physics, Chemistry; an evening and Sunday-school for apprentices and assistants; it soon realised that aim and had in its third year over 1,000 students. But it went far beyond these limits and as it tried to remedy deficiencies wherever they were felt, it became a nursery of "Fachschulen" and a type of institution, copied at Berlin and elsewhere, which, in keeping with the spirit of the age, calls into existence the beginnings of "Fachschulen," which in the near future will detach themselves from the mother stem as separate and fully-developed institutions.

Productive industry no longer commands the necessary leisure for the training of its workpeople and demands schools. Accordingly day classes were started. Decorators, modellers, carpenters filled the classes arranged for their benefit. To meet the wishes of the makers of instruments of precision, a more specialised organisation was given to a school for mechanics' assistants, who devote six months or a year exclusively to their studies. Electrical industries, with their great development, required, here as in other towns, engine fitters, and it was once more to the "Handwerkerschule" that the experts turned, and to which the resources of the Association of Electrical Engineers and the contributions of the leading firms and the municipality were directed for the organisation of an electro-technical class, now one of the features of the Institution. Among other specially developed courses are those for typewriters, to which is shortly to be added one for mercantile lithographers. The advantage of free development is here clearly shown, it enables older people to take part, who, while following their calling, are enabled to study its special processes.

The need of a second "Handwerkerschule" was soon felt. Housed temporarily in an old school building it was opened in October, 1892, and supported chiefly by the Municipality. At first it followed the plan of its predecessor. Until the new buildings now in the course of erection are completed, it must dispense with courses in chemistry and physics, but in addition to its day classes for decorators its special features are a day class for metal workers and a course for repoussé work, which have opened up fresh advantageous positions to its pupils.

While the "Handwerkerschulen" fully occupied and extended their sphere of influence, the Continuation School received a more compact organisation. Intended for those who have completed the tale of school attendance, and amid the occupations of their calling are seeking to render permanent and enlarge the results of their school education, either on their own initiative or on the recommendation of their teachers or employers. These schools have been distributed over Berlin in accordance with "the principles for the administration of the Continuation Schools in Berlin" laid down in 1881, so that anybody in need of them has only a moderate distance to go. The students, however, choose their school, and it is not seldom that they go long distances to attend the classes of a particularly appreciated teacher. The buildings of the elementary schools are becoming more suitable and roomier every year; in the evenings they are at the disposal of the Continuation Schools, which gradually remove to the newer buildings.

The number of Continuation Schools (at present twelve) is being slowly increased, and great weight is attached to a large attendance. For the greater the number of pupils the easier it is to form groups of about the same standard of attainment; at this point the liberty of movement for the members of the classes ceases, the student is free to choose his subject, German or Arithmetic, English or French, Drawing or Modelling, etc., but the decision as to the class within the branch which he has chosen, is left to the Director after appropriate examination.

At first the directors (head masters) were chosen among the head teachers of Elementary Schools; acquainted with the course of education, modes of thought and conditions of life of their pupils, and experienced in discipline, such men knew and know how to strike the right note that appeals to the feelings of the pupil Their enthusiasm for this new branch of their work has contributed largely to the success of the Continuation School. The optional attendance makes the existence of a class depend on a sufficiency of students, and with the class the fees of the director and teacher rise or fall. Thus the institution receives diligent scholars and efficient teachers, and the director is given a considerable voice in the selection of the latter. This arrangement, however, is not to be considered permanent; the simultaneous demands of a large Elementary School, and of a comprehensive Continuation School, soon wears down the strength of any man, and so recourse is had to the appointment of a director, whose chief work lies in the Continuation School. Such men are also able to keep in touch with the employers, and where necessary to control the regularity of attendance.

Each school has a governing body, consisting of men of very different callings, whose special office it is to see that the instruction is well adapted to the needs of the pupils, and supported by good equipment.

The direction of policy lies with the School Committee, whose executive officers are the local inspectors. The grants from local funds are determined by the communal authorities.

The branches of instruction are numerous. They include elementary subjects which are needed by those who have not realised the full aims of the Elementary School, as well as those branches of knowledge, skill, and the arts which the serious student requires in ordinary life. Fortunately the Continuation Schools have maintained till now such flexibility that curriculum and standard of instruction are not determined by State regulations, but by the needs of the students attending the classes. Since the time at their disposal is but short, as a rule, two hours in the evening of each weekday and a few hours, under certain conditions, on Sunday morning, and, as the students seldom take more than eight hours a week, this shortness of time creates a special difficulty. In many towns which have made the Continuation School obligatory, and can therefore only count on a few years of study, the authorities are content with two hours a week for each branch. We urge consecutive rather than simultaneous study of different branches, and therefore give four hours a week to German, to each modern language, and usually to drawing, while to other branches, as arithmetic, physics, chemistry, geometry, etc., two hours are assigned. The attendance at these classes often extends beyond the duration of the apprenticeship into the journeyman years; even master workmen, well on in years, take their part, according to the needs of their business or their inclinations and desires. Thus in the IX. Continuation School in the winter session 1898-99 there were eleven four-hour courses in German, partly graduated, partly alternative, and divided according to the age of the students. Special emphasis is laid upon orthography and correctness of expression; the students attach less importance to literary knowledge, but efforts are made to induce the pupils to read standard authors. A reading-book is used in the lowest classes only. It is intended that the literary treasures accessible in any public library shall be really utilised.

The characteristic feature in the history of this institution during the last few years has been the development of the instruction in drawing; the more artistically the teachers are trained the greater attention is paid to figure-drawing. The methods of instruction are undergoing a process of change; above all, the drawings are better, and the capacity of the pupils to reproduce the results of their observation with the pencil is increasing. After drawing modelling claims a large share of attention, and here, too, the progress has been from the decorative to the representation of plants, and then to figure modelling. Modelling from the nude, under the direction of capable artists, has penetrated even as far as the Continuation School. The study of French and English is increasing, and in the last few years shorthand and type-writing have found more favour with the students.

In 1892 and 1893 two forms of industrial instruction were detached from the general system of the Continuation Schools. They owe their peculiar organisation partly to the

conditions of the industries concerned, which are distributed over the whole town, partly to an addition to §120 of the State Regulation of Trade promulgated in 1891. These are the Gewerbesaal and the Carpenters' School; the former aims at providing instruction in theory and in drawing for apprentices, and journeymen employed in machine construction, in artistic smithies, and by art locksmiths. The latter undertakes the training of young carpenters, who again are divided into builders, carpenters, and upholsterers of various branches. For both trades drawing classes had become a necessity. At the Continuation Schools these classes had been entrusted to expert teachers, and were attended by a large number of pupils. But the courses lacked direction. It was not deemed advisable to create a single institution for each of these great trades. Each would have required a large building, and the distances would be too great to allow all the pupils to be collected at one centre. The courses, therefore, were held in Elementary Schools, which offered their rooms as drawing halls, and the general oversight in matters of discipline and order, left as before to the heads of the Continuation Schools, while a competent engineer was appointed "direktor" of the *Gewerbesaal*, and an artistic and technically trained carpenter to the Carpenters' School. The directors have to supervise the work of the various centres, to draw up a suitable curriculum, and to instruct the teachers. The Gewerbesaal had last winter over 2,000 pupils at ten centres, and the Carpenters' School with nine centres more than 850 pupils.

Courses for turners were also established in connexion with the latter school.

Just as these institutions have been evolved from the Continuation School and created technical schools of a special kind, so they bore within themselves the seeds of future development. Day classes were instituted; on a small scale in the Carpenters' School, but for the Gewerbesaal fully organised and with a yearly course and thirty-six hours of instruction a week. This is to provide young engineers and the members of kindred callings after the completion of their apprenticeship with the opportunity of extending their theoretical training, so that later on they may be successfully engaged as foremen fitters or engineers. Thus the necessity for a special building has arisen, which shall serve as a kind of central school for the local branches, which are still to continue, and which shall provide the necessary machines and rooms for drawing, chemistry, and physics. A plot of ground has been obtained, and the plans are in progress. In the same building a day class will also be held for the Carpenters' School and will be equipped with the requisite labour-saving machines. Mechanics and locksmiths, as well as carpenters, will thus have an opportunity of learning the uses of such machines in small shops, and as the network of the electrical cable extends over all the town, and power is easy to obtain, stimulus and the possibility of existence side by side with the large factories, is given to the small firms and to the single workman, by reason of efforts which demand individualised

attention either through skilfully devised construction or special artistic execution. But for those, too, engaged in large works, for foremen and fitters, we hope to arrange that even the elementary operations—forging, turning, filing, the operations in wood, the staining of wood, will be practised with the skill and exactness, which, through the system of piecework prevailing in the factory, are all too easily neglected.

The development of the two technical schools here described is only an example among many similar more or less mature formations. The technical schools for each trade have been gradually, and each in its own fashion, evolved from the Continuation Schools or formed on existing models. Only a few trades in Berlin are still without such a school. Various factors have contributed to the rapid spread of these institutions; above all the present conditions of apprenticeship, conditions which in the main are reproduced with certain modifications in the Empire at large, and which have led to legislative enactments, whose effects have yet to be tested, but whose objective is on the whole that of our "*Fachschulen.*"

Firstly. In consequence of the minute sub-divisions and extreme specialisation the apprentice only learns a small portion of his trade in the workshop. The tailor makes vests or trousers or coats, and the unhappy apprentice of a vest-tailor after completing his term is unable to work for trouser-makers. The saddler makes trunks, straps, and least of all saddles. The basket-maker makes coarse baskets, or else wicker furniture, or else fancy goods. The paper-hanger hangs wall papers, or does upholstery, or else makes curtains of all kinds; and in this way one might pass in review all trades with reference to their specialisation, and the danger is always great that the apprentice only learns part of his trade. Accordingly he ought to learn at school what he misses at the shop. The task is not easy, the process of learning demands the production of articles and this production makes competition for the artisan, which prejudices him against the school. The object is, therefore, to instil the rules which govern the processes, to practise manual operations without burdening the school with actual production.

Secondly. In certain trades there is as a general rule no workshop. The principal distributes the work to his assistants, who execute it at their own homes; he may do the cutting out or designing; the apprentice, however, receives practically no instruction, because the assistants, who are paid by the piece and not by the hour, cannot be troubled to look after him.

Thirdly. In the case of artisans, as carpenters, turners, wheelwrights, locksmiths—whose work is done at certain fixed places in the shop, as the carpenter's bench, the turning lathe, the vice, the aim of the employer is to use such places to their full extent and not to allow them to stand empty in working hours. Apprentices are expensive, because they do not help to earn the rent Respectable artisans of this class have little inclination to train apprentices. There is consequently considerable danger of a deficiency in the supply of skilled workers. To remedy this is

the object of the "Fachschule." The fundamental principle is that the apprentice instructed in the "Fachschule" in the methods of his craft and in the subsidiary sciences is thereby made fitter for the workshop and more valuable to his master.

The existing schools are almost all connected with the corresponding trade associations; these corporations, which possess certain rights under the *Gewerbeordnung*, and which are responsible for the training of the apprentices, contribute with very few exceptions to the support of these schools and depute master-workmen to serve on the governing bodies. The president of such a body is a representative of the *Gewerbe Deputation*—a municipal board, with whose assistance the finances of the school are administered. The town generally bears a considerable part of the cost, in particular it provides the buildings. The State, too, contributes towards several schools. While some schools have remained places of general instruction in drawing, arithmetic, or kindred subjects, others, as the schools for saddlers, bookbinders, upholsterers, tailors, shoemakers, wheelwrights, hairdressers, have become regular workshops. But it is never forgotten that this instructional workshop is not to replace, but only to supplement the real workshop. It is justly assumed that by accustoming the pupil to the actual methods of operation, the practical knowledge thus acquired, the skill in the economical use of material and of implements actually at hand form indispensable requirements in the education of the young artisan. As a rule the guilds require the apprentices to attend these schools, either during the whole or for a part of their apprenticeship. This regulation is gradually being made effective: the masters offer less opposition, and the more masters enter the guild, who have themselves experienced the benefit of the institution, the greater is the zeal of the guild for the school. Against this form of compulsion the opponents of the obligatory Continuation School can raise no objection. For these schools are governed each after its own manner, according to the needs of its own pupils; attendance being required by the same authority as is responsible for the apprenticeship finds its natural place in the regular round of daily life.

As to Commercial Continuation Schools there is still considerable conflict of opinion. It is clear that definite conclusions can only be drawn when the multiplicity of commercial operations and the diversity of training required have received their due meed of attention. All civilised countries are occupied with this question; we only discuss its bearings in Berlin.

At the beginning attention was directed to the case of boys who on leaving an Elementary School enter a retail house, or, in instances of more than average capacity, a bank. For such pupils the general Continuation School with its instruction in arithmetic book-keeping, and now typewriting and shorthand is sufficient. If the young man were desirous of further improvement, there are the classes in French and English. Therefore it has been a long time before special Continuation Schools for commercial pupils came into existence.

We must not, however, omit to mention that regular courses for older and better-prepared students in higher commercial subjects—as commercial geography, commercial law, bills of exchange, political economy—have been maintained for several years by the Merchants' Guild, and conducted by prominent teachers. At first the municipality contributed to their support by the loan of buildings, but the teachers were afterwards transferred to a room in the Exchange, and in reality form the staff of a Commercial High School on a small scale.

Others engaged in commercial pursuits have been educated at a Secondary School, (Gymnasium, Realgymnasium, Obercalschule, or Realschule,) though only a small minority reach a higher standard than that required for the one year's exemption from military service. (Since 1884 this goal has been rendered more accessible to boys from Elementary Schools by means of the Realschulen.) The degree of attainment, however, is so different from that of boys coming directly from the Elementary Schools, that for this reason alone a differentiation of the classes is a necessity. The "Einjährigen," as a rule, only take the really technical courses—commercial geography, book-keeping by double entry, etc. It is open to question whether matter intended for ex-scholars of Elementary Schools ought to be offered in the same dress to more intelligent pupils, as is the case in certain towns with obligatory Continuation Schools. It is a noteworthy fact that Continuation Schools connected with "Realschulen" have not received such support from former pupils of these schools as was hoped.

An association of merchants on the one hand and a governing body on the other found themselves compelled to establish a special commercial Continuation School. It was desired to detach the commercial pupils from the trade apprentices, and to emphasise the commercial element in the instruction; in the language courses, perhaps too much so, at the expense of a proper training in the foreign tongue, and with excessive attention to formularies. It must be admitted, however, that the age and intellectual attainments of the pupils were somewhat higher than those of the ordinary Continuation School pupil, and that in the curriculum were included such subjects as office-work, commercial geography, lessons on commercial products (Waarenkunde), bills of exchange. These private Continuation Schools, which were only aided by the municipality with the loan of buildings, had on their rolls last winter 2,584 pupils (including 1,453 apprentices), while the other Continuation Schools had 2,003 commercial pupils, of whom 1,572 were apprentices.

The general Continuation Schools still continue to provide for the wants of commercial students, and to extend their curriculum wherever advisable by the addition of commercial branches, *e.g.*, commercial geography, and foreign languages not hitherto taught, *e.g.*, Russian. But in view of the immense number of tasks that devolve upon the Continuation School it is greatly to be desired that the special and appropriate organisation of Commercial

Schools should be undertaken by other bodies. The matter is now in this favourable condition. Through the intervention of the Minister of Trade it has been possible to entrust the Commercial Schools to the control and support of the Court of the Merchants' Guild, so that the association referred to above only pays a small contribution, and the town provides the room. A special director to supervise all the schools has been chosen by the court, and efforts are now being made so to organise the schools that pupils of different degrees of attainment attend different courses of instruction, and a certain standard of knowledge is required on admission, so that less well prepared pupils remain in the general Continuation Schools. The Commercial Schools will gradually assume a more permanent shape, and begin to compete with similar schools in other towns. Thus here, too, the aim, towards which every effort is directed, has been attained, viz., that those interested in the trade shall actually bear the burden of the trade schools.

Various forces have combined to give to the Continuation Schools for girls and women their present shape. Their transitional character is more obvious than in the schools for boys, but they have passed beyond the stage of makeshifts to that of organised institutions. The first attempt had a distinct ethical purpose. Certain associations undertook to start a Continuation School for girls of the labouring classes. The monotonous, deadening work in the factory was to be counterbalanced by that of the evening and Sunday school; the classes in German, arithmetic, sewing, and dressmaking were to provide intellectual stimulus, moral elevation, and an increase in earning power. The municipality offered the necessary premises and noble-minded women sought to brighten the hours of rest by Sunday evening entertainments. This aim has been but slightly realised. Insuperable objections to Sunday instruction were raised by the "State Regulation of Trade" and by the Church authorities. It has ceased, and on workdays the girls are too tired to come to classes. The school, however, was not closed—nay, others were opened, but the social classes using them changed. The old principle, it is true, is still retained, and classes are held which girls following industrial occupations have the opportunity of attending, but by far the greater numbers of pupils come from families which keep their daughters at home for some years after the age of fourteen and occupy them with housework. Accordingly, these Girls' Continuation Schools are attended chiefly by girls who devote not indeed the whole of their time to self-improvement, but who are able in the daytime (particularly in the later afternoon) to enlarge their school attainments, and occupy themselves with such arts as sewing, needlework, cutting-out, ironing, etc., with such branches of knowledge as modern languages, arithmetic, book-keeping, geography, etc., which may prove useful in future employment or in the service of the family. The instruction in German, to which special weight is attached, serves to widen the point of view, to render stable moral principles, and is an introduction to the literature

and thought of the age. These schools enjoy great favour. Shorthand and type-writing have been introduced, and steps are being taken to include cookery. Gymnastics and singing are pursued with zeal as an important complement of education. Increasing attention is paid to drawing, and the schools are beginning to compete with the trade schools for women, which are supported by certain associations, as the Lette-Verein, the Heimatshaus für höhere Töchter. At the present time nine such schools are maintained by the municipality, and four by governing bodies in receipt of municipal subsidies as well as the loan of elementary school buildings.

H. BERTRAM.

Berlin,
December, 1899.

APPENDIX.

The following statistics have been taken from the "Übersicht über das Fortbildungsschulwesen und die gewerblichen Unterrichtsanstalten der stadt Berlin" prepared by Dr. Bertram for the School Committee of the Municipal Town Council. The figures refer to the Winter Session, 1899-1900.

A. Continuation Schools for Male Students.

(1) Municipal Institutes for Adults.

[These institutions are designed to meet the needs of persons engaged in business, who desire to acquire, complete or retain a degree of attainment equivalent to that of a Mittelschule.]

The subjects of instruction are: Mother Tongue, French, English, Commercial Arithmetic, Bookkeeping, Shorthand and Typewriting.

Number of institutions	4
Number of pupils	876

(2) Municipal Continuation Schools for Youths.

[The schools are intended to assist such boys as have entered on a practical calling immediately after leaving the Elementary School, to keep up their studies and to supplement them by such instruction and exercises as will increase their moral and professional efficiency.]

The branches of instruction include French, English, Physics, Chemistry, Algebra, Geometry, Bookkeeping, Shorthand and Typewriting; in some schools additional instruction in Commercial Correspondence, Bills of Exchange, etc., History, Geography, Drawing, Modelling, etc.

Number of institutions	12
Number of pupils	10,188

(3) The Continuation School of the Association of Artisans.

Number of pupils	454

(4) Commercial Continuation Schools, maintained by the Chamber of Commerce of Berlin.

Number of institutions	5
Number of pupils	2,215

B. Continuation Schools for Girls.

(1) Municipal Continuation Schools.

Number of institutions	9
Number of pupils	3,654

(2) Continuation Schools maintained by Associations and other Bodies

Number of institutions	6
Number of pupils	2,154

C. Institutions giving specialised Technical Instruction.

*(1) Municipal Higher Weaving School. Day Courses, 61 pupils.
Evening Courses, 179 „

§(2) Schools for Artisans (Handwerkerschulen), 2 schools with 3,786 entries.

		Pupils.
‡(3)	Building Schools	267
(4)	Gewerbesaal (10 local divisions)	2,265
(5)	Trade School for Bricklayers and Carpenters	265
(6)	„ „ „ Joiners (Tischlerschule)	1407
*(7)	„ „ „ Shoemakers	69
*(8)	„ „ „ Painters and Decorators	257
(9)	„ „ „ Saddlers	150
*(10)	„ „ „ Upholsterers	228
(11)	„ „ „ Blacksmiths	148
*(12)	„ „ „ Glaziers	70
*(13)	„ „ „ Chimney Sweeps	88
*(14)	„ „ „ Wheelwrights	63
*(15)	„ „ „ Basketmakers	20
†(16)	„ „ „ Bookbinders	86
†(17)	„ „ „ Gardeners	65
(18)	„ „ „ Printers	715
(19)	„ „ „ Painters	73
(20)	„ „ „ Tailors	142
(21)	„ „ „ Confectioners	101
†(22)	„ „ „ Potters	59
†(23)	„ „ „ Photographers	56
†(24)	„ „ „ Plumbers	61
(25)	„ „ „ Coopers	9
*(26)	„ „ „ Hairdressers	508

NOTE.—All these schools are under the immediate jurisdiction of the executive (*Magistrat*) of the Berlin Municipality, but they are not all of them directly administered by the Municipal Education Committee. This Committee has under its immediate charge the schools enumerated under A and B, and details as to the progress of these schools will be found in the annual report on the *Fortbildungsschulwesen* presented to the *Magistrat* by the *Schuldeputation*. The other schools are under the surveillance of the Municipal Committee on Trade, but this Committee avails itself of the educational experience of the expert advisers of the School Committee, one of whom has a seat on the board of management of each individual school. It will be noticed that it is only to schools of the latter class that State aid is granted, and this support is given through the Ministry of Trade, and not by the Education Department.—A. E. T.

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* Maintained conjointly by the State, Town, and Trade.
† „ „ „ the Town and the Trade.
‡ „ „ „ the State and the Town.
§ „ by the Town, but in receipt of a State Grant.

NOTE ON THE EARLIER HISTORY OF THE TECHNICAL HIGH SCHOOLS IN GERMANY.

It will probably be admitted that in the opinion of the majority of Germans the greatest achievement in the field of educational organisation in their country during the last century has been the creation of the Technical High School. This institution is, perhaps, more than any other, the child of the nineteenth century, for, born but little before it, it attained its full enfranchisement as the last sands of the old century were quickly running out. Thus the story of its progress lies within the compass of a hundred years. From its humble origin as a school which stood on the borderline of elementary education it has advanced in importance and in public esteem, till it has been recognised by the highest authorities in the land as the equal, and inevitably, to some extent, the rival, of the ancient University. Though sedulous watch was kept over the progress of events in other countries, it remains true that this development has been achieved by constant efforts towards improvement from within, aided by the wise and fostering care of rulers and statesmen, and by the unselfish devotion and broad conceptions* of those who were engaged in the work.

Not that the nineteenth century can claim the credit of having produced the idea of "technical instruction," for this, in some shape, has been always existent, and previous attempts to embody the idea in definite form were not unknown even in Germany. More than once had reformers tried to find some more suitable training than that of the classical schools for such pupils as were not intended for higher studies—a training which, going beyond the limits of the primary schools, would fit them better for the practical callings they were to follow. Such was the purpose of the school which Semler founded at Halle in 1705; this was the object of the "Realschule" which Pastor Hecker opened in Berlin in 1747; but after a lapse of time their course was changed.

In a higher grade this same need was also recognised. In 1745 the Collegium Carolinum was founded by Abbot Jerusalem at Brunswick. In the sketch of his project the founder expresses himself as follows:—"For innumerable years we men of learning

*Cf. Festgabe der Technischen Hochschule zu Karlsruhe, 1892, p.62. Redtenbacher's words as quoted by Dr. Keller: "Meine Bestrebungen als Lehrer richten sich nicht allein auf die wissenschaftliche Theorie der Maschine, mir liegt die Kultur des industriellen Publikums am Herzen. Wenn die Gebildeten den gegenwärtigen Zustand der Industriellen roh nennen, so haben sie recht; wenn aber jene glauben, es vertrage sich eine ächte, Bildung garnicht mit einer industriellen Thätigkeit, dann haben sie unrecht."

have been able to think that we alone are the pillars of human society, and that, outside our four faculties, health and reason are not to be found. We would retain honour enough if we were to cede one part, even the half of it, to our neighbours who live in other classes. Those who benefit the world through the wide dealings of commerce, who bring useful contrivances for the advantage of trade, for the improvement of natural products, for the increase of trade and agriculture, who follow mechanical arts—these form an equally important part of the community as the men of learning. And yet, amid all the sums of money devoted to schools and academies, they have received little or no attention."*

Accordingly the new institution contained a technical division. Some years later these new studies were brought into still closer relation with the old learning, when in the University of Göttingen, so often the pioneer of new developments, lectures were given by Professor Beckmann on technology and on the applications of chemistry to industry by Professor Ginelin.† But all these various attempts were the isolated efforts of individuals, and, though not without value, can hardly be said to have exercised a determinative influence on the developments of the coming century.

The new age brought new needs. The great discoveries by revolutionising the old methods of production entirely changed the relations of the countries of Europe to one another. So keenly was this felt in Germany that, even amid the storm and stress of the revolutionary wars, that country made some effort to adapt itself to the new conditions. Bavaria, it is said, readily sold the property of the confiscated monasteries to foreign industrialists, but reaped little profits from their efforts. When the removal of Napoleon to his lonely banishment at St. Helena afforded good grounds for the hopes of a lasting peace, industrial questions came everywhere to the front.

The cry for technical education came from two quarters—from the State itself, and from individuals who were anxious to improve the industries of their native country. The State itself was directly interested in many branches of industry: forestry, mining, lines of communication by land and water were under its immediate care, and for these purposes it required officers more thoroughly trained than heretofore, especially on the theoretical side. On the other hand, outside official circles, the industrial supremacy of England was an ever-present source of bitterness, and thinking men began to cast about for some means by which this state of dependence might be ended. But in this struggle England was not their only foe; they had to contend against prejudice and ignorance at home. Several writers complain with indignation of

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* Quoted in *E. Zöller:* Die Universitäten und die Technischen Hochschulen, p. 47.

† *Cf. Fischer, F.* Das Studium der technischen Chemie an den Universitäten and Technischen Hochschulen Deutschlands. Braunschweig, 1897.

the low esteem in which industrial pursuits were held. All crowded to the service of the State. Professor Finckh asserts that "every State official considers it his bounden duty to make all his sons follow in his steps, even if he had a dozen; thus many a one is lost to industry, but not gained for science."* However, they did not despair, and their chief remedy was education. The following passage from an anonymous writer in a periodical of the period is not devoid of interest. "All nations," he says, "are fighting for the profits of industry and trade, and through the action of some Governments this struggle has assumed the character of open war. Among the weapons which are irresistible in this economic warfare the spread of knowledge holds the first place, and all outlay for this purpose is a good investment, which *must* be remunerative. Money, as a rule, follows knowledge and avoids ignorance and stubborn stupidity.

"Another point to be considered is that all nations are not at the same level, but some are far in advance, and would, if they could, hinder the others from following them. This circumstance makes haste imperative; the distance must be reduced as quickly as possible. The nearer we are the less effective will be the efforts to hold us back. Chief among such nations is England, which is always presented to us for our example. She has not only far outrun us, but she avails herself of all her advantages not to allow us to follow her. In this matter all nations which are striving for a share in the products of industry and commerce are at war with England, and that country suffers continuously small but numerous defeats, which it cannot avert if we are but persistent. To attain this end the most requisite means is a wealth of knowledge. When knowledge is better distributed and wider spread than in England then we have nothing more to fear from her; then she is compelled against her will to open the sphere of activity over the greater part of the world for herself and for us, and involuntarily to accept the part of our commercial tout. Simply to envy England, merely to gaze at her with admiration, profits us nothing; 'tis but to sit idly by with folded hands and to befool ourselves with the delusion that it were useless to fight against this full-grown giant. We have all looked on idly while England gathered strength; she now enjoys the fruits of her labours, which will not be lessened or taste less sweet on account of our envy. Nothing remains for us but to win these fruits, and nothing can stop us as soon as we have learnt to sow the seed and reap the harvest. This seed is nothing more than the preparation of knowledge, and this we must scatter with no sparing hand."† Similarly, too, Nebenius, one of the most prominent statesmen of Baden, and to whose activity the *Zollverein* was largely due, when discussing the question whether

* *Prof. D. L. Finckh.* Über Gewerbeschulen und ihre Einrichtung in Württemberg. Stuttgart, 1829.

† Kunst-und Gewerbe Blatt. München, 1829, p. 507.

it was the duty of the State to provide opportunities for technical training for any but its own officials, says that the training of the higher productive classes is quite as important for the State as the high capacity of its technical officials.

Accordingly, with this object in view, the Polytechnische Schulen were founded. The schools had a double aim: they were intended to secure for science a foothold in the workshop, to assist with the light of reasoned theory the progress of arts and industry, till then fettered by many a prejudice and hindered through lack of knowledge; on the other hand, they sought to raise that part of the nation engaged in industry to such a level of culture as would secure to it its due measure of public respect.

The history of these institutions may roughly be said to fall into three periods:—(1) The period of foundation (1800–1835); (2) the period of adjustment (1835–1875); (3) the period of development. It is not intended to trace at length the development within each of these periods, but rather, by recalling some of the most striking changes which these institutions have known, to indicate roughly the point from which they started and the course which their development has followed.

In 1899 the Technical High School at Charlottenburg celebrated the centenary of its existence, but, taken strictly, this celebration had reference to but one portion of its work, for the Technical High School was the result of a fusion of two independent institutions—the Bauakademie and the Gewerbeschule. The former is the older, founded in 1799, mainly for purposes of State, though its aim is defined in the royal decree sanctioning its institution in the following terms:—"To train in theoretical and practical knowledge capable surveyors, architects, civil engineers, and masons, principally for the King's dominions, but foreigners may find admittance if no disadvantage accrue thereby to the King's subjects."*

In 1821 a complementary institution, which looked more to the needs of the industrial classes, was provided in the "Technische Schule" instituted on the initiative of Beuth. These two institutions continued to exist side by side till they were combined, in 1879, to form the Hochschule.

In the years which elapsed between the foundation of the "Bauakademie" and the "Technische Schule" two schools had been opened in the neighbouring kingdom of Austria, at Prague (1806) and Vienna (1815), which combined in greater or less degrees the aims of the two Berlin schools. The greater development of industry in Austria and Bohemia was probably the main cause of this combination.

Then there followed in quick succession a number of similar institutions in different parts of Germany. In 1822 a Realschule

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* *Nebenius, C. F.* Über technische Lehranstalten in ihrem zusammenhang mit dem gesammten Unterrichtswesen. Karlsruhe, 1833, p. 102.

was opened at Darmstadt, out of which sprang, at a later date, a Polytechnische Schule. In 1825, after the matter had been under consideration since 1808, it was finally decided to start a polytechnic school at Karlsruhe. Bavaria established three such schools at Munich (1827), at Nürnberg (1829), and at Augsburg (1833). The Technische Bildungsanstalt was opened at Dresden in 1828. Technical classes were added to the Realschule at Stuttgart in 1829, and Höhere Gewerbeschulen were established at Cassel (1830) and Hanover (1831). Finally, in 1835, the Collegium Carolinum, at Brunswick, was reorganised in such fashion as to bring it more into harmony with modern needs. Thus between the years 1821 and 1835 the foundations were laid of all those institutions, except that of Aachen (1870), which are now recognised as the Technical High Schools of Germany. Exception must be made in the case of Aachen, which, though it did not from the first receive the style and organisation of a high school, yet possessed an original equipment far different from that with which the earlier institutions had to be content. It was able, even amid the stress of war, to open its courses in 1870 with a staff of thirty-two teachers and no fewer than 223 students.

It must be borne in mind that these earlier institutions were far from being homogeneous in character or organisation, nor at that time was nomenclature any sure guide to the nature of the institution. The same name was given to institutions of very different types, and schools of approximately the same type are known under a variety of names. Thus the polytechnic school at Munich more nearly resembled the Höhere Gebwerbeschule at Hanover than the Polytechnisches Institut at Vienna.

The individual institutions show the same lack of a definite conception of their function. It was not realised at first that there are at least two distinct grades of technical instruction, which it is hardly possible to provide for within the same institution. At the "Technische Schule" at Berlin it was originally proposed to instruct manufacturers and those who were little more than artisans, but there was only one course of instruction. The Höhere Gewerbeschule at Hanover admitted students of very varied attainments, and with very different objects in view, and sought to meet these different needs by varying the length of the course, though the elementary instruction was given to all alike. Rektor Prechtl, the first head of the Vienna institute, in his opening address, urges the advantages of a scientific training. "It is true," he says, "that all processes in the world may be reduced to a few rules, by following which in a mechanical fashion one can, within a limited range, attain the desired end; but how far superior is he who does his work with scientific insight, to the man who is chained to a mechanical procedure." And this scientific training he would mete out in equal measure to manufacturers and foremen alike. Still more clearly is this absence of differentiation illustrated by a writer who, when commenting on the Vienna school, expresses the hope that what the Austrians seek

to secure by "intension," by one central institute, Bavaria may gain by a liberal extension of the instruction over many institutions, and the Bavarian institutions which the writer had in mind were the Sunday Schools.

After a few years the policy of "intension" was everywhere adopted. Separation was strongly urged by Nebenius,* who maintained that it was impossible to base the higher technical schools on the lower; there must, he argued, be two classes of schools—those which aim at imparting considerable skill in execution with a modicum of knowledge, and those which aim at giving more knowledge and less manual dexterity. In this contention he has the support of Professor Mitterer, who defined the functions of the schools of these two categories to be in the one case to illustrate science by practice, and in the other to illuminate practice with science.

It was the higher type of school that received the greater share of attention. Nebenius himself reorganised the school at Karlsruhe, being convinced that here the higher must precede the lower, if it were only for the purpose of securing a proper supply of teachers for the latter. It was inevitable that the gap between the two should grow greater, and few will support Rücklin in his criticism of the polytechnic school "for following the specialising tendency of the age, turning more and more away from the immediate regard to the needs of practical industrial life, and for devoting itself exclusively to the pursuit of science."†

But it is exactly this steady pursuit of science which has created the High Schools and given them their present position and influence. This was the aim which the leaders of the movement kept clearly in view during the middle third of the last century when the work of transformation was being gradually accomplished. With each extension of industry the scope of the schools was widened.

During the years that elapsed between the reorganisation of the Collegium Carolinum (1835) and the union of the Bauakademie and Gewerbeschule at Berlin to form the Technische Hochschule (1879), the polytechnic schools of Germany were so constantly changing and expanding that it is hardly possible to give a general account which would be applicable to all. But the progress, on the whole, was towards establishing an identity of type, and the ideal before them was the University. Despite all variety, however, there are certain common features distinguishing their earlier from their later development, and the chief of these may be considered under the following heads:— Administration, Organisation, Curriculum, Conditions of Admittance.

Administration.

Seeing that the polytechnic schools were in the majority of cases founded to meet the immediate needs of the State service, it is but

* *Nebenius.* Über technische Lehranstalten, p. 74.
† *Cf. Rücklin. F.* Die Volksgewerbeschule. Leipzig, 1868, p. 9.

natural that the connection between them and the administrative departments which they served was much closer than is usually the case with educational institutions, even though they are supported out of public funds. In many instances the officials of the department concerned not only exercised the oversight over the schools, but acted as teachers as well. Thus the officers of the Works Department at Berlin performed such service for the Bauakademie, and various members of the "Technische Deputation" discharged a similar function in the case of the Technische Schule. It was only about the middle of the century that the principle of appointing regular teachers for these schools was adopted by the Prussian authorities. In some cases where the school had its permanent director he was very often little more than the executive officer of the Ministry.

Where the school possessed a regular staff, certain powers of management were delegated to them. At Karlsruhe, at a very early date, a committee of the teachers was practically responsible for the organisation and discipline of the school. Over this committee the Director of the school presided, chosen annually by this committee from among the members of the staff. This arrangement dates from the reorganisation of the school by Nebenius in 1833. For some years this privilege of selecting their own head was suspended. It was restored in 1860, when the right of election was no longer confined to a committee, but to the whole body of regular professors.

This example at Karlsruhe has been followed by all the other Technical High Schools, with the single exception of Munich, which still retains the system of a permanent director.

It was but natural that as the work of these schools grew in importance a large measure of self-government should be granted to them, and it may be mentioned that this recognition of their educational status was generally accompanied by their transference from the care of the Office of Works to that of the Kultusministerium. At the present day each institution has its own constitution. In most cases the administration of general matters is entrusted to a small council, consisting of the Rektor, his predecessor, and a certain number of professors chosen by their colleagues as their representatives; in some cases the chairmen of the various "Fachabtheilungen" are added to this council.

Organisation.

At the beginning of the movement the organisation of the schools was the simplest possible. All the pupils followed the same course. The institution was in actual fact a school with a uniform curriculum. The age of the pupils—fifteen years of age being the average minimum required—demanded that the discipline should be that of the school as well. Attendance was strictly controlled, and a considerable amount of time was devoted to the practice of repetition of the lessons, under the superintendence of one

of the pupils. The advance of knowledge rendered specialisation imperative, and this was met by the introduction of the principle of the "Fachschule." Here, again, Karlsruhe, under the guidance of Nebenius, was the pioneer.* During the forties this principle gained a footing in all the polytechnic schools, but the lines of division were not always identical, and were not infrequently altered at the same school. Below these Fachschulen there was in every case a general class, where the new students were prepared for their higher work. This arrangement was essential in times when the modern secondary schools were not so highly developed as at the present day, and when the conditions of admission were less stringent. These preparatory classes have now disappeared, and the Technical High Schools are modelled on the lines of University organisation, the Fachabtheilungen corresponding to the faculties of the University. This change has necessitated the introduction of the principle of Lernfreiheit into the technical schools. Some of them possessed it from the first (*e.g.*, Hanover), and Nebenius discussed and rejected the idea in his work already referred to. He points out that in a technical training there is a necessary sequence of studies, and that, unless the preliminary branches are thoroughly mastered, the subsequent time is wasted; therefore he prefers a fixed course, and retains the principle of promotion. It is interesting to note that in recent years, though no official infringement has been made on this much-prized privilege, yet it has become the custom to issue with the sanction of authority certain recommended courses of study.†

Reference has already been made to the principle of Fachabtheilung, which has been introduced into all the Technical High Schools. Not even now are the lines of division exactly the same at all the schools: there is a department for shipbuilding at Berlin only: Darmstadt alone has a department for electrotechnics. The important point is the recognition of the fact that division does not mean isolation, but that, as the need arises, the students of one department can attend lectures on cognate subjects in another, and that the combination of these various departments to form a single institution benefits each branch of study there pursued.

Curriculum.

The curriculum was in the first years the same for all the pupils of the schools. The work was, in the main, theoretical. At Dresden and at the Technische Schule in Berlin a considerable proportion of the school hours was spent in the workshops attached

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* *Cf. Koristka, C.* Der h here polytechnische Unterricht in Deutschland, p. 25. "An der Karlsruher Schule kam zuerst in Deutschland das System der Fachschulen zu vollem Durchbruch."

† *Cf.* Programm der Königl. Technischen Hochschule zu Hannover, 1901-1902, p. 90. "Den Hörern bleibt die Wahl der Lehrfacher frei überlassen. Für ein geordnetes Studium empfiehlt sich aber die Beachtung der folgenden Studien-und Stunden-plane."

to these schools. But this practice was gradually abandoned even in these centres. It was felt that though such workshops might be extremely valuable at a time and in a country where industry was but little developed, yet where there was sufficient opportunity to gain experience in the regular industrial undertakings it was not the function of the school to attempt to supply that experience under conditions which must always be more or less artificial. A more potent reason for the closing of such workshops was the scant attendance. At Berlin, in 1860, there were only ten pupils, while the workshops, in which fourteen workmen were engaged, cost in annual maintenance over £1,300.*

The modern workshops attached to the Technical High Schools serve a very different purpose. They are not concerned with production, but illustrate the theoretical instruction. In this sense there has been a very large increase in the amount of time devoted to practical exercises, while the more formal lecture has been greatly curtailed.†

The changes with regard to subject matter of the instruction have been even greater. At the beginning the school curriculum contained but few branches, taught by comparatively few teachers; to-day the lecture list of the Technical High School at Hanover contains notices of 206 courses of lectures or practical exercises. This increase is, of course, due to the constant specialisation and sub-division of branches which were originally dealt with by one teacher in a single course of lectures. No doubt much of the specialisation has been an inevitable consequence of industrial progress, but it has been very materially aided and encouraged by the scientific interest which the teachers at these institutions took in their work, and by the ready support given to independent investigation.

Conditions of Admission.

Nothing perhaps discloses so readily at the first glance the altered position of these schools as a perusal of the different conditions laid down for admission at the time of their creation and at the present day. In 1799 the Bauakademie admitted pupils from the age of fourteen, provided they could write and spell, had some knowledge of the elements of Latin and French, and understood the first four rules of arithmetic. The Gewerbeschule admitted pupils between the ages of twelve and sixteen, and required no foreign language. At the Dresden Technische Bildungsanstalt it was only specified that the pupils should have attained the age of fourteen.‡

It was, however, soon found incompatible with the needs of the public service that the standard of admission should be fixed so low;

* *Cf.* Koristka. Der höhere polytechnische Unterricht, p. 65.

† *Cf.* Festschrift der technischen Hochschule zu Berlin, p. 182, containing tables showing for a series of years the relative proportion of time devoted to lectures and practical exercises in the various branches.

‡ Hüllse, Die technische Bildungsanstalt zu Dresden, 1854.

and, though the measure of the State's requirements has never been adopted as the entrance standard for all candidates, it has necessarily had very considerable influence in raising the general level of attainment.

As the polytechnics curtailed the length of their preparatory courses, the age of admission naturally rose, and about the middle of the century it was generally fixed at seventeen. At the present day there is no age limit, for, by reason of the great extension of the opportunities for suitable preparation, it is the custom to require evidence that the student has satisfactorily passed through a recognised course of study sufficient to enable him to attend the High School with profit. Entrance examinations are no longer imposed on native students, though they may be still demanded of foreigners. Up till 1870, or thereabouts, such examinations were regularly held at many of the polytechnic schools. Prussia was the earliest State to require a certificate of attendance at certain specified institutions. Under the present regulations, students at Prussian Technical High Schools must possess the leaving certificate of one of the three types of secondary schools with nine classes if he desires to become a candidate for State employment; otherwise he may be admitted if he has gained his promotion to the top class (Prima).

Thus out of the school which was primarily intended to minister to particular needs of a State Department, there has grown an institution which aims at satisfying the many-sided wants of modern industrial life in its highest range. The school which with its scanty buildings and small endowments, with its narrow and elementary curriculum sought to equip both leader and follower at the same time, has developed into an institution with ample buildings and large funds at its disposal, with a curriculum limited in its upper range only by the bounds of human knowledge, while the existence of a standardised system of secondary education has placed it in a position to require from its students on their entrance such a measure of general education as enables them to take up directly the work of their scientific training. The simple school, with its rigid discipline and paternal government, has become an institution of University rank, in full enjoyment of the traditional privileges of self-government.

A. E. TWENTYMAN.

November, 1901.

APPENDIX A.

TIME TABLES OF VARIOUS INSTITUTIONS AT DIFFERENT STAGES OF THEIR DEVELOPMENT.

(1) The Bauakademie at Berlin in 1799.

The records contain no account of the apportionment of the hours of study between the different branches, nor the distribution of the latter over the years of the course, which lasted from 1½ to 2½ years. Instruction was given in the following branches :—

1. Arithmetic, Algebra and Geometry.
2. Trigonometry and Solid Geometry.
3. Analytical Geometry.
4. Practical Geometry.
5. Statics and Hydrostatics.
6. Mechanics and Hydraulics.
7. Theory of Machines.
8. Building Construction
9. Architecture.
10. Land Surveying.
11. Roads, Bridges, Canals and Locks.
12. Riverwork and Harbours.
13. Machine Construction.
14. Physics, Chemistry, Mineralogy.
15. Plan-drawing.
16. Freehand Drawing and Ornament.
17. Architectural and Machine Drawing.
18. Modelling.

(2) The Technische Schule at Berlin in 1821.

Lower Class.

1. Geometry.
2. Arithmetic.
3. Physics and Chemistry.
4. Drawing.
5. Modelling.

Upper Class.

1. Mathematics (Algebra, Geometry : Plane and Solid ; Trigonometry ; Statics and Mechanics).
2. Chemistry.
3. Drawing (Freehand and Perspective).

(3) The Polytechnische Schule at Karlsruhe in 1826

The school embraced two divisions—(*a*) a general course ; (*b*) a mathematical ; and to these a commercial course was added. The following branches were taught :—

1. Religious Knowledge.
2. Mother Tongue.
3. History and Geography.
4. Mathematics.
5. Natural Science.
6. Chemistry.
7. Physics.
8. Drawing.
9. Architecture.
10. Theory of Machines.
11. Commercial Subjects.

(4) The Bauakademie at Berlin in 1849.

(a) For "Bauführer."

(A two years' course.)

1. Algebra.
2. Geometry and Spherical Trigonometry.
3. Solid Geometry and Projection.
4. Surveying.
5. Perspective.
6. Statics and Mechanics.
7. Physics and Chemistry.
8. Geognosy.
9. Theory of Construction.
10. Designs of Buildings.
11. Building Materials, Estimates, etc.
12. Country Architecture.
13. Drawing.
14. Roads and Waterworks.
15. Machine Construction.

(b) For Architects.

(One year's course.)

1. Chief Styles of Architecture.
2. Principles of Architecture.
3. Drawing and Designing.
4. Designs for Public Buildings.
5. Ornament.

(c) For Civil Engineers.

(Wege. v. Wasser. Baumeister.)

1. Analytical Dynamics.
2. Geodesy.
3. Waterworks.
4. Railways.
5. Theory of Machines and Machine Construction.

(5) The Gewerbeinstitut at Berlin in 1849.

I.—*General Course.*

1. Pure Mathematics.
2. Physics.
3. Chemistry.
4. Geometrical Drawing, Perspective and Machine Drawing.
5. Freehand and Architectural Drawing.

II.—*Special Courses.*

(a) For "Mechaniker."

1. Theory of Machines.
2. Railways and Iron Buildings.
3. Mechanical Technology.
4. Practical Work.

(b) For "Chemiker."

1. Applied Chemistry.
2. Analytical Chemistry.
3. Laboratory Work.
4. Outline of the Theory of Machines.

(c) For "Bauhandwerker."

1. Freehand and Architectural Drawing
2. Modelling in Clay.
3. Designs and Estimates.
4. Planning of Factories.
5. Outline of the Theory of Machines.
7. Models of Buildings in Plaster, Wood or Sto

(6) The Polytechnische Schule at Karlsruhe in 1847.

A.—General Mathematical Class. (Three years' course.)

———	I.	II.	III.
1. Religious Knowledge	2	2	2
2. History	4	–	–
3. Mother Tongue	2	2	2
4. French	6	3	3
5. English	–	–	3
6. Pure Mathematics	6	–	–
7. Geometry	4	–	–
8. Trigonometry	2	2	–
9. Geometry	8	8	4
10. Analytical Geometry	–	2	4
11. Practical "	–	4	4
12. Differential and Integral Calculi	–	4	5
13. Statics and Mechanics	–	5	5
14. Botany	–	4	–
15. Mineralogy and Geology	–	–	4
16. Physics	–	4	–
17. General Applied Chemistry	–	–	4
18. Freehand Drawing	4	2	4
19. Writing	1	1	–
20. Modelling	–	4	–
	39	47	44

B.—Special Schools.

I. Engineering.

———	I.	II.	III.
1. Ethics	3	–	–
2. English	3	–	–
3. Analytical Mathematics	3	–	–
4. Mechanics (Advanced)	3	–	–
5. Practical Geometry	4	–	–
6. Advanced Geodesy	–	–	3
7. Roads and Waterways	12	14	–
8. Machine Construction	12	12	–
9. Theory of Construction	4	–	–
10. Practical Surveying	–	8	8
11. Estimates	–	–	18
12. Designs for Machines	–	–	6
13. Architectural Technique	–	–	4
14. ———	–	2	–
15. Administration of Works	–	–	2
16. Landscape Drawing	4	4	–

B.—Special Schools—cont.

II. Building Schools.

——	I.	II.	III.	IV.
1. Mother Tongue (Literature) -	2	–	–	–
2. Ethics and Æsthetics - - -	–	2	3	–
3. Art Archæology - - -	–	–	–	3
4. History of Architecture - -	–	–	7	–
5. Descriptive Geometry - - -	–	–	–	2
6. Spherical Trigonometry and Analytical Geometry.	4	–	–	–
7. Differential and Integral Calculi	4	–	–	–
8. Mechanics and Hydraulics - -	6	–	–	–
9. Geometry - - - - - -	4	–	–	–
10. Theory of Machines - - -	–	6	–	–
11. Designs of Buildings - - -	–	7	5	5
12. Architectural Technique - -	–	3	–	–
13. Road and Waterways - - -	–	–	6	–
14. Mineralogy and Chemistry - -	–	–	–	8
15. Architectural and Ornamental Drawing.	5	5	5	5
16. Plan Drawing - - - -	5	5	6	–
17. Figure Drawing - - - -	–	4	–	–
18. Pictorial Perspective - - -	–	–	–	5
19. Modelling - - - - -	8	8	4	4

III. School of Forestry.

——	I.	II.	III.
1. Mother Tongue - - - -	2	–	–
2. Compendium of Law - - -	2	–	–
3. Mathematics - - - - -	4	4	–
4. Surveying - - - - -	–	4	–
5. Physics - - - - - -	4	–	–
6. General Applied Chemistry - -	–	4	–
7. Mineralogy - - - - -	–	3	–
8. Agricultural Chemistry - - -	–	–	3
9. Botany - - - - - -	4	4	–
10. Zoology - - - - -	4	–	–
11. Roads and Waterways - - -	–	2	–
12. Science of Forestry - - -	3	–	–
13. Outlines of Political Science - -	–	2	–
14. Theories of Climates and Soils -	–	2	–
15. Forestry and Peat Culture - -	–	6	–
16. —— - - - - -	–	5	–
17. Forest Administration - - -	–	–	2
18. Forest Regulations - - -	–	–	6
19. Equipment and Estimates - -	–	–	6
20. Forest and Sporting Laws - -	–	–	2
21. Practical Exercises - - -	–	–	–

B.—Special Schools—cont.

IV. "Höhere Gewerbeschule."

——		
1. History and Ethics	4	3
2. French and English	6	–
3. Zoology and Botany	7	–
4. Mineralogy	–	4
5. Applied Chemistry	4	2
6. Geometry	10	–
7. Mechanics and Statics	10	6
8. Machine Construction	12	12
9. Architecture	–	4
10. Roads and Waterways	–	8
11. Bookkeeping, etc.	2	–
12. Practical Work	–	–

V. Handels-(*A.*), and Postschule (*B.* and *C.*).

——	A.	B.	C.
1. Religious Knowledge	–	2	–
2. General and Commercial History	1	4	–
3. Ethics and Æsthetics	–	–	3
4. Geography and Mother Tongue	4	4	6
5. French and English	7	4	8
6. General and Commercial Arithmetic.	3	3	2
7. Physics and Mechanics	–	7	–
8. Theory of Commerce and Transport.	4	–	–
9. Outlines of Political Science	–	–	4
10. Bookkeeping and Correspondence	4	–	–
11. Commercial Contracts and "Knowledge of Goods."	2	–	3
12. Writing and Drawing	4	2	2

(7) The Gewerbeinstitut at Berlin in 1860.

I.—General Course.

	1st Half Year.	2nd Half Year.	3rd Half Year.
1. Algebra	6	–	–
2. Analytical Geometry	6	–	–
3. Differential and Integral Calculi	–	8	6
4 „ Geometry	4	8	6
5. Experimental Physics	4	4	–
6. Chemistry	6	6	–
7. Theory of Building	4	4	4
8. Analytical Statics and Mechanics	–	–	10
9. Drawing (Freehand and Architectural).	4	4	4
10. Modelling	6	6	–

II.—Special Courses.

(*a*) For "Mechaniker."

	4th Half Year.	5th Half Year.	6th Half Year.
1. Mathematical Physics	4	4	–
2. Stability of Buildings and Machines	6	–	–
3. Theory of Machines	–	4	4
4. Applied Hydraulics	–	4	–
5. Special Machines	–	4	4
6. General Construction of Machines	4	–	–
7. Designs for Machine Parts	10	–	–
8. Designs for Machines	–	2	4
9. Selected Machines for special purposes.	–	–	2
10. Mechanical Technology	–	6	4
11. „ „ (Practical)	–	4	–
12. Designs for Works and Factories	–	8	14
13. Building Construction	–	4	4
14. Machine Drawing	6	–	–

II.—Special Courses.—cont.

(*b*) For Students of Chemistry.

—	4th Half Year.	5th Half Year.	6th Half Year.
1. Inorganic Chemistry	4	4	–
2. Organic Chemistry	4	4	–
3. Mineralogy	4	4	–
4. Geognosy	–	–	3
5. Metallurgical Chemistry	–	3	–
6. Applied Chemistry	4	4	–
7. Designs for Chemical Works	–	4	4
8. Theory of Special Machines	–	4	4
9. Practical Work in Inorganic Chemistry.	35	8	40
10. Practical Work in Organic Chemistry.	35	8	40

(*c*) For Students of Shipbuilding.

The course is the same as that for "Mechaniker," except that Nos. 7, 9, 12, 13 are omitted, and replaced by 1. Shipbuilding, 4 hours each half-year; 2. Designs for ship's engines, 4 hours in the last year; 3. Designs and estimates for ships and shipyards, 6 to 12 hours each half-year.

(8) The Polytechnische Schule at Karlsruhe in 1860.

A.—Mathematical Course.

First Year.

1. Religious Knowledge	2
2. Arithmetic and Algebra	5
3. Geometry	3
4. Plane Trigonometry	2
5. Descriptive Geometry	–
6. Mother Tongue	6
7. French	6
8. Freehand Drawing	4
9. Writing	1

Second Year.

1. Differential and Integral Calculi.	5
2. Plane and Spherical Trigonometry.	2
3. Analytical Geometry	2
4. Descriptive Geometry	6
5. Elementary Mechanics	5
6. Experimental Physics	4
7. Mother Tongue	2
8. French	3
9. Freehand Drawing	2
13. Modelling	4

Third Year.

1. Differential and Integral Calculi	4
2. Analytical Solid Geometry	2
3. Analytical Mechanics	3
4. Descriptive Geometry	4
5. Land Surveying	4
6. Physics (Advanced)	3
7. Chemistry	4
8. Mineralogy and Geognosy	4
9. German Literature	2
10. French	3
11. English	3
12. Freehand Drawing	4
13. Modelling	4

B.—Special Courses.

I. Engineering.

First Year.		Second Year.	
1. Differential Equations	2*	1. Roads and Waterways (II.)	4
2. Quadratics	1*	2. Exercises in Construction	6
3. Geodesey	2*	3. Railway Construction	2*
4. Applied Mechanics	2	4. Exercises in Construction	4*
5. Roads and Waterways (I.)	4	5. Machine Construction (II.)	10
6. Exercises in Construction	6	6. Mathematical Physics	2*
7. Machine Construction (I.)	12	7. Lectures on Legal Topics	2*
8. Theory of Practical Construction.	5	8. Freehand and Landscape Drawing.	4
9. Freehand and Landscape Drawing.	4		
10. Modelling in Wood and Stone.			

Note.—Courses marked with an asterisk last but half a year.

For those preparing themselves for the State Service there is an additional course extending over six months.

II. The Building Schools.

First Year.		Second Year.	
1. Chemistry	4	1. Machine Construction	6
2. Mineralogy and Geognosy	4	2. Roads and Waterways (I.)	4
3. Building Materials	2*	3. Technical Side of Architecture (I.)	3
4 Descriptive Geometry	4	4. Building Estimates	2*
5. Statics and Stability	2	5. Elevations	5
6. Elevations and Plans	10	6. Designing of Simple Plans	5
7. Landscape Drawing	4	7. Landscape Drawing	5
8. Ornamental Drawing	5	8. Freehand and Ornamental Drawing.	9
9. Modelling in Plaster and Wood.	8	9. Modelling	8

Third Year.		Fourth Year.	
1. Technical Side of Architecture (II.)	3	1. Lectures on Law	2
2. Advanced Architecture (I.)	3	2. Advanced Architecture	3
3. History of Classical Architecture.	2	3. History of Mediæval Architecture.	2
4. Designs for Dwelling Houses.	6–9	4. Designs for larger Public Buildings.	6–9
5. Exercises on Older Styles of Architecture.	2–3	5. Exercises in Mediæval Styles of Buildings.	2–3
6. Perspective	2–3	6. Perspective	2–3
7. Ornamental Drawing	2–3	7. Ornamental Drawing and Designing.	2–3
8. Figure Drawing	4	8. Figure Drawing	4
9. Freehand Drawing	4	9. Freehand Drawing	4
10. Modelling	4	10. Modelling from Original designs.	4

Students may join the first year's class after passing through the second class of the mathematical course.

B.—Special Courses—cont.

III. Mechanical Engineering.

First Year.		Second Year.	
1. Theory of Machines	6	1. Theory of Machines and Technical Mechanics.	6
2. Machine Construction	6	2. Machine Construction	6
3. Experimental Physics	4	3. Mathematical Physics	2*
4. Applied Mechanics	3	4. Advanced Physics	3
5. Practical Geometry	4	5. Practical "	6
6. Applied Chemistry	3	6. Chemistry	4
7. Geognosy (useful minerals)	2*	7. " Recapitulation	2*
8. Roads and Waterways (I.)	4	8. Roads and Waterways (II.)	4
9. Freehand Drawing	4	9. Metallurgy	2
10. Practical Work in Mechanical Workshops.	–	10. Freehand Drawing	4
		11. Practical Work in Mechanical Workshops.	–

* For one half-year only.

Students may join the first year's class after passing through the second class of the mathematical course.

IV. Applied Chemistry.

There is no fixed yearly curriculum. The students choose their subjects according to their needs, combining them in a course of two or more years as circumstances require.

General Chemistry (I.)	4	Mineralogy	3*
General Chemistry (II.)	1	Geognosy	3*
General Chemistry Recapitulation.	2*	Geognosy of Useful Minerals	2*
Analytical Chemistry	2*	Practical Mineralogy	2
Practical Chemistry	–*	" Crystalography	2*
Agricultural Chemistry	2	" Geometry	4
Applied Chemistry	3	Machine Construction	6
Metallurgy	1	Elementary Mechanics	3
Experimental Physics	4	Mechanics of Transport	2
Advanced Physics	3	Bookkeeping, etc.	6
Botany and Zoology	8	Elementary Lectures on Roads and Waterways.	2*

* For one half-year only.

Students can enter on the course in applied chemistry after passing through the second class of the mathematical course.

There are other courses for forestry and for the commercial school and Postschule. These time tables are not added here

APPENDIX B.

The Present Lecture-List of the Technical High School at Berlin.

For purposes of comparison some few details are added here of the lecture courses provided at the Technical High School at Charlottenburg during the winter-session now in progress.

As at present organised this high school comprises six departments, each of which has its own staff of salaried teachers and of *Privat-dozenten* (*i.e.*, lecturers who receive a certain portion of the fees paid by the students for attendance at their lectures). The salaried teachers are divided into two classes, viz., those that hold regular professorships, and those that occupy a position personal to themselves. The number of teachers of these various categories on the staff of each department is as follows :—

	Regular Professors.	Salaried Teachers.	Privat-Dozenten.
I. Department of Architecture - -	9	11	16
II. „ „ Civil Engineering -	6	4	5
III. „ „ Mechanical Engineering.	8	8	7
IV. „ „ Naval Architecture and Shipbuilding.	1	4	1
V. „ „ Chemistry and Metallurgy.	7	8	12
VI. „ „ General Science -	7	9	17

There are also, in addition to these teachers, several demonstrators who assist the professors in the laboratory instruction.

Each department is by no means a self-sufficing professional school; the students enrolled at the matriculation in one department have full liberty to attend the lectures in any other; and it may be said that the sixth department, offering mainly instruction in the fundamental sciences (*e.g.*, Mathematics and Physics), is the common property of the other five. In the official time-tables issued by the authorities of the Technical High School at the end of the enumeration of the lectures given by the staff of one department, there is appended a list of lectures from other departments suited to the purposes of the students of that division.

(*a*) The Department of Architecture offers sixty-five courses of lectures or practical exercises; twenty-four of these are given by the Privat-dozenten. The list includes courses on the History of Art, Architecture and Ornament, on Building Construction, on Designing of Buildings in different materials and for various purposes; on the preparations of estimates, etc.

(*b*) The Department of Civil Engineering provides courses in Mechanics, Railway Construction, Bridges, Canals and Harbours, Hydraulics, Drainage and Land Surveying. In all thirty-four courses are given, eight by Privat-dozenten.

(*c*) The Department of Mechanical Engineering gives instruction in the following branches, Kinematics, Machine Construction, Mechanical Technology, Designs for machines, Power machines driven by water, steam,

or electricity, Electrotechnics, Electro-mechanics, Electrical works and railway works (especially engines and carriages). The full list includes fifty-four courses, sixteen delivered by Privat-dozenten.

(*d*) In the Department of Naval Architecture and Shipbuilding courses are provided in the Theory of Shipbuilding, Designing of warships, Boilers, Machine Construction, Practical shipbuilding, Classification of ships. Nineteen courses are delivered, for one of which the single Privat-dozent of this department is responsible.

(*e*) The Department of Chemistry and Metallurgy offers fifty-one courses, thirteen of which are in the hands of Privat-dozenten. The chief courses deal with Chemistry (organic and inorganic), Physical Chemistry, Electro-chemistry, Technological Chemistry, Crystalography, Metallurgy, Foundry work, Cements, Botany, Chemistry of plants and foods.

(*f*) The Department of General Science offers fifty-eight courses, twenty-eight being delivered by Privat-dozenten. This department includes lecture courses not only on Mathematics, Physics, and kindred subjects, but on Literature, French, English, Italian, Law, and Political Science.

In each department there are courses on other subjects beyond those mentioned here, but it is hoped sufficient indication has been given of the nature of the work undertaken by each.

RECENT DEVELOPMENTS IN HIGHER COMMERCIAL EDUCATION IN GERMANY.

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More attention being devoted to the subject of higher commercial education by Universities in America, Great Britain, and Germany.

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RECENT DEVELOPMENTS IN HIGHER COMMERCIAL EDUCATION IN GERMANY.

I.

How to provide the most practically useful and intellectually stimulating kind of higher commerical education is a question which year by year grows in practical importance and international significance. Practical business men are far from being agreed on the subject. Many of them shrug their shoulders when the question is raised, or regard with a sort of sceptical indifference any practical attempts to solve it. The old ways, they say, will last their time, and who can forecast the future? Others openly deride any scheme for the theoretical training of men of business, and maintain that commercial leaders, like poets, are born, not made. But a small, though active, minority are convinced that something can be done, and must be done, to provide for young men, who have completed their secondary education and intend to devote themselves to a commercial life, a course of higher commercial education, which shall be equal in quality, comparable in difficulty, but different in content to the "honours" course at a university or at a technical college of university rank. This little band (for in no country is it at present more than a little band), which is resolutely bent on solving the problem of the higher commercial education, has long been fighting an uphill battle. Nothing in the world is more stubbornly conservative than an ingrained educational tradition. And, at first sight, the whole weight of commercial, as well as of educational, tradition seems to be against those who hold that the highest type of commercial education is fast becoming essential to the maintenance of far-reaching, successful commercial operations. "Have there not been," it is asked, "hundreds of great commercial leaders, before colleges for higher commercial education were so much as thought of? Does not your advocacy of advanced commercial instruction hint at some disparagement of the intellectual competence of those men of business, who are now at the head of famous firms, but have made their way in the world with very little in the shape of theoretical training to help them? Will not the old methods, which made Great Britain the leading commercial power of the world, suffice to train up generation after generation of men able to maintain her greatness? What need is there for these new-fangled schemes of lectures and classes on commercial science? Can any young beginner hope to learn as much from professorial instruction as from the sterner discipline of practical life? It is in the workshop, not in the lecture room, that a man must learn his trade."

To such arguments as these the advocate of higher commercial education is content to make a temperate reply. He bases his whole case on the argument that the conditions under which commerce on a great scale is now carried on, have so changed that the older type of higher commercial education is fast becoming obsolete, and therefore needs to be replaced by some effective substitute. "Higher commercial education is no novelty," he says in reply to his opponent; "there has always been such a thing, but it has been imparted privately by the head of the firm to his junior, or by some senior assistant to the new-comer—informally imparted, no doubt, as occasion offered, but imparted none the less effectively, and with due admixture of practical illustration and practical experience. Under favourable conditions the plan worked excellently. Nothing could be more educative, from a commercial point of view, than the living tradition of a great house of business, supplemented by oral explanations and by confidential hints from the experienced heads of the firm. Our higher commercial education has been *implicit* in the practical training thus given by one generation of commercial leaders to its successors. Many of our great commercial men learnt their business, as in the old days a Japanese painter or draughtsman learnt his craft, by living in close companionship with one who was himself a master of the art which the pupil desired to learn. But the conditions are changing. Business has to be done at a much higher pressure than heretofore. There is far less time at the disposal of the heads of a firm, or of the heads of departments, in which to give all-round instruction to young beginners, however promising they may be. The old leisurely ways have been left far behind, and the beginner has much less chance of learning his business thoroughly and from every point of view than had his predecessors a generation and more ago. Again, in every great house of business there is more sub-division of labour than there used to be. Such sub-division has become necessary in consequence of the immense scale on which commercial operations have to be carried on in order to yield an adequate profit under the stress of intense competition. But what a beginner needs is not only to learn one part of a business, or a number of its separate parts in succession, but to gain a general view of the business as a whole, and a firm grasp of the details in their relation to the whole of which they form a part. It is just this general view of the whole business which a specially intelligent pupil most needs to get. His future value will largely depend on his clearly grasping the relative importance of each part of the business, and on his gaining insight into the reasons why one branch of it, though still apparently prosperous, is really threatened with decline, and why some other branch, though still apparently unprogressive, is really full of rich promise for the future. The men, however, who could teach him all this (assuming, that is, that they wanted to teach it) are constantly occupied by the multitudinous and insistent claims of modern business, and are rarely at

leisure to 'coach' a new beginner in such a way as to enable him quickly to form an intelligent judgment on the larger issues at stake. Something therefore (they argue) must be done to replace by some other means the kind of higher commercial education which is fast disappearing with the old *régime*. Nothing in the shape of lectures and classes can ever fully replace the advantages of *the old system at its best.* But the old system was not always at its best, and is rapidly becoming obsolete. It is incumbent on us, therefore, to do all that we possibly can to devise an effective substitute for the older kind of higher commercial education by means of some combination of theoretical instruction and of practical apprenticeship. Moreover, in another way still, the conditions have changed. The heads of a great commercial house to-day have perforce to deal with a far wider range of facts, and with a more complicated variety of facts, than had their predecessors a generation ago. Nor are the factors in the problem as stable as they were. Much more has to be known about many more things, and in consequence of incessant changes in economic relationships, etc., this widely-extended knowledge has, in turn, much more frequently to be revised and renewed than was the case thirty years ago. Hence it follows that the beginner needs to start with a much broader basis of exact and sifted knowledge than sufficed for his father's needs. And it is the province of highly skilled professors of commercial science to furnish the beginner with the foundations and outlines of this knowledge in such a way as to start him on the right lines upon which he can build up a great store of information for himself. "But, when all is said and done," continue the advocates of higher commercial education, "we do not mean to imply that attendance at courses of lectures on commercial subjects can in itself create a successful man of business. Theory can never be a substitute for practice, but practice means much more to a man who has a firm grasp of theory. We do not propose that colleges for higher commercial education should supersede the painstaking study of the practical facts of business life, seen under business conditions, and, so to speak, 'under fire' from competing firms. We believe that the higher commercial education which might be given in lecture rooms or in other courses of instruction should be regarded as a supplement to practical training, not as a substitute for it: as an ingredient, not as an alternative. Nor do we think that colleges or professors of commercial science can create genius, or the sure instinct for business possibilities which is the native gift of a successful business man. Imagination, constructive ability, resourcefulness, sagacity, self-control, patience, courage, trustworthiness, instinctive perception of essential points, and that creative power which is the artistic gift of a great man of business—these are qualities of mind and character which, though all of them may be developed (or injured) by education, are fundamentally gifts of nature—inborn, inherited, and developed under favouring circumstances or by the pressure of necessity. Colleges for higher

commercial education cannot make up for defects of natural ability, for a bad home training in early childhood, or for the loss of a thorough and inspiring secondary education. They are no substitutes for perseverance and hard work. But they can (we maintain) crown, and crown effectively, the good training which has gone before. They can prepare a youth to gain more advantage from the practical experience which will follow. They can help those who are keen to help themselves. They can give business instincts and business faculties a better chance for all-round development. In a few cases they may even so kindle in a young man's mind an enthusiasm for the more scientific side of business as to reveal, in what would otherwise have passed as mere talent, the presence of that infinitely more valuable thing—commercial genius. Therefore (they conclude) let us leave nothing undone which will stimulate, more widely than is at present the case, an intellectual as well as a practical interest in the problems of modern trade."

In what form, and in what combination of theoretical instruction and of practical apprenticeship, higher commercial education will be best imparted, according to the varied needs of the different categories of modern trade, time and patient trial alone can show. But the friends of higher commercial training have at any rate the satisfaction of knowing that their ideas are going to be thoroughly sifted and tested in practice. For some time there have been in existence Higher Schools of Commerce at Antwerp and Neuchâtel, in Vienna, and in Venice and at Tokyo, not to speak of the similar institutions in Paris and several of the great French cities, where however the critics say that the popularity of the Écoles Supérieures de Commerce is due, not so much to a widespread desire for higher commercial training, as to the hope of winning a diploma which will excuse the holder from two out of three years' military service.* Not less instructive (in some ways more instructive) has been the experience gained by the École Libre des Sciences Politiques in Paris, now in its 31st year of usefulness, and by the London School of Economics and Political Science, which has already done so much to promote the systematic study of problems of public administration, political science, and practical economics.† In the same category with the two last-named institutions may be mentioned the Wharton School of Finance and Political Economy, a former director of which (Professor E. J. James, now head of the College of Commerce and Political Science at the University of Chicago) has done much to press the problem of higher commercial education on the attention of business men and of University authorities on both sides of the Atlantic. But, as their names imply, the Paris École Libre des Sciences Politiques and the London School of Political Science, as well as the Wharton

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* *See* report on "Higher Commercial Education at Antwerp, Leipzig, Paris, and Havre," in Vol. 3 of this series.

† For an account of the work of this school (now a school of the University of London), *see* Vol. 2 of this series.

School of Finance, make it only part of their work to provide courses specifically intended for the training of commercial men. Much that the latter would find useful, and even indispensable, is found in their programmes; but on the other hand they do not offer, and cannot be expected to offer, certain things (*e.g.*, a commercial museum, a library of commercial magazines and works of reference, instruction in foreign languages, in the nature of commercial commodities, in technological subjects in their bearing on commerce, and in accounts and office management) which would be required in the case of an institution devoted to the higher commercial education of business men. Yet the work which has been accomplished by these schools of political science has served to prove, both directly and indirectly, what varied opportunities of usefulness and what fruitful fields of inquiry lie before the High Schools of Commerce in the immediate future.*

Still more significant is the movement of University opinion in the direction of establishing new "Faculties of Commerce," or departments which provide special training for men intending to devote themselves to business life. In America, where commercial education of a lower grade has long had a firm footing, several Universities have recently attacked the problem of higher commercial training, with the animation and adventurous energy which so honourably distinguish American education at the present time.† In England, three of our six Universities are now, in one way or another, concerned in the attempt which is being made to devise the right course of higher commercial education. The Belgian Government has decreed the creation of Commercial Faculties at the Universities of Ghent and Liège.‡

Finally, in Germany, where for some time there was a good deal of hesitation on the subject, no less than four Higher Schools of Commerce have been opened during the last four years. This singularly rapid development is of special interest to many educational students, and the aim of this report is to give a brief account of what has recently been done in this new province of higher education in Germany. There is perhaps no word, in the

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* It may conveniently be mentioned here that the London Chamber of Commerce (10, Eastcheap, E.C.) has made a beginning with commercial lectures and classes in Michaelmas Term, 1901. The subjects taught are:—(1) Geography, with special reference to commerce; (2) Banking and Currency; (3) Commercial and Industrial Law; (4) Commercial History, and the elements of Political Economy; (5) the Machinery of Business; (6) Spanish; (7) Italian; (8) French; (9) German. All the lectures are announced to be given in the evening, mostly from 6.30–7.30 p.m.

† An account of what is being done will be found in Mr. Hartog's Report on "Commercial Education in America," in Vol. 10 of this series.

‡ *Times*, September 26th, 1901. In an interesting article on Higher Commercial Education, the writer argues strongly in favour of regarding the Universities and University Colleges of our great cities and towns as "the proper theatre for experiment in higher commercial education in this country."

long technical vocabulary of German Education, the right use of which is more jealously guarded than that of Hochschule. The term is always held to connote an institution worthy to be recognised as being of University rank. No charlatan would dare to use the word unworthily. The academic and cultivated sections of German society would censure and disclaim any group of teachers who might presume to debase the educational currency by attaching the title of Hochschule to an institution unqualified to give thorough and scientifically accurate instruction of a University type in all the subjects mentioned in its programme.

The standard of public opinion on the subject of syllabuses and educational nomenclature varies widely in different countries. In America, for example, the mind of the reader seems to glow with satisfaction when he peruses educational announcements, the "magnificent distances" of which must (as he is well aware) be of the nature of an optical delusion. The American syllabus seems often to be regarded as a work of art in itself, apart from its relation to actual achievement. It is often an ideal ground-plan of studies, without being at the same time a virtual promise to render the exact services which it so attractively portrays. In England, much that is educationally best refrains from ordinary advertisement to a degree which often makes it difficult for the outsider to realise how much excellence is hidden from his gaze, while other educational work, though far from being as good as it should be, is allowed to make up for gaps in actual performance by a generous measure of public self-appreciation. In Germany a University or Public School advertises itself in a plain, decent, business-like way, and then proceeds to perform, to the best of its power, exactly what it has undertaken to do.

In Germany, again, educational terms have, as a rule, as fixed a value as have the pieces in chess. The term Hochschule implies a high standard of educational effort. It is significant, therefore, as showing with what thoroughness the Germans have recently addressed themselves to the task of higher commercial education, that of the four new institutions, to which reference has been made above, one is a new department of an already celebrated Technical Hochschule; two are new foundations actually bearing the name of Hochschulen; while the fourth, though known by the title of Academy, is avowedly a Hochschule in all but name.

II

The first Commercial Hochschule in the German Empire was opened in Leipzig at Easter, 1898.* At Michaelmas in the same year a department of Commercial Science (Kursus für Handels-

* The regulations of this Hochschule, and an account of the circumstances attending its foundation, will be found in Vol. 3 of this series, pp. 571-576.

wissenschaften) was established as part of the Royal Technical High School at Aachen. On May 1, 1901, a Municipal Commercial High School (Städtische Handels-Hochschule) was opened at Cologne. And on October 21, 1901, the new "Academy for Social and Commercial Science" (Akademie für Sozial-und Handelswissenschaften) began its first session at Frankfort-on-the-Main.

I will now proceed to describe the constitution, aims, programmes, teaching staff, rules of admission, and diplomas, of these four institutions, and to state, so far as figures are already available, the statistics of the attendance at them, and the fees charged to students.

i. Constitution.

(*a*) The Handels-Hochschule at Leipzig (office at Löhrstrasse 3/5[1]) was founded by the Leipzig Chamber of Commerce, in agreement with the Academic Senate of the University of Leipzig. The new institution also enjoyed the co-operation of the Handels-Lehranstalt (Commercial Educational Institution) previously existing in Leipzig. When the scheme for establishing the Handels-Hochschule was in embryo, the Rector of the University of Leipzig and several of the University professors were consulted by the promoters on the subject of the connection of the new High School with the University. It was decided that the Handels-Hochschule should not become an organic part of the University, but that the University should co-operate in its work, be represented on its governing body and admit the students of the Handels-Hochschule to certain privileges in regard to attendance at lectures at the University—privileges which are reciprocated by the Handels-Hochschule in the case of matriculated students of the University. But it is expressly laid down by the Statutes of the Handels-Hochschule that no one may be enrolled, as a matriculated student, on the books both of the University and of the Commercial High School at the same time. Thus, the University and the Handels-Hochschule are in intimate alliance, but not in organic union. The Senate of the Commercial High School at Leipzig consists of eleven members, viz., three representatives of the Leipzig Chamber of Commerce (one of these being President of the Chamber and *ex-officio* chairman of the Senate of the Handels-Hochschule); one representative of the Saxon Government; one representative of the City of Leipzig; three representatives of the University of Leipzig, these being Professors nominated for the purpose by the Academic Senate; two members of the staff of the Leipzig Handels-Lehranstalt appointed by the Committee of that institution; and, finally, the Director of Studies of the Handels-Hochschule (Professor Dr. Raydt). Thus the governing body of the Commercial High School includes representatives of academic learning, of the central Government, of the municipal administration, of commercial interests, and (what matters not least to the welfare and wise development of the young institution) of the teaching staff.

The Leipzig Handels-Hochschule is for the present, *i.e.*, so long as it has no independent constitution, under the supervision of the Saxon Ministry of the Interior.

The financial responsibility for the Handels-Hochschule is for the present borne by the Leipzig Chamber of Commerce.

(*b*) The Royal Technical High School at Aachen (of which the Commercial Classes form a new Department) is one of those great institutions for giving the highest type of technological instruction, which are in effect the Technological Universities of Germany, and which have done so much (deriving, as they do, thoroughly well prepared students from an intellectually efficient system of secondary schools) to further the interests of German trade and industry. Nothing gives the reader a better idea of what is meant by modern science in the service of practical life than a perusal of the programmes of these Technical High Schools, with their wealth of well-arranged courses of instruction of first-rate quality, designed to equip the student with the knowledge which he needs for an intellectual grip of the scientific problems of modern industry. In the Technical High School at Aachen, for example (which is, in point of intellectual standards, as much a University as are the Universities of Giessen, Marburg, or Kiel), there are thirty-three full professors, sixteen lecturers (Docenten and Privatdocenten), and twenty-six assistants, as well as three gentlemen (two of them medical men in Aachen and one a leading man of business) who give occasional instruction, besides the large secretarial staff, the library officials, and the minor assistants in the laboratories, etc. The Hochschule has, of course, a great variety of collections, laboratories, workshops, etc., in connection with it. These are forty-seven in number. The general aim of the Aachen Technical High School is two-fold: (1) to provide higher education of a type which will qualify students to render expert service in industrial callings or in technical branches of the State, or municipal administration; and (2) to promote the study and extension of the arts and sciences which fall within the province of higher technological education. This High School is divided into five departments: (1) Architecture; (2) Civil Engineering; (3) Mechanical Engineering; (4) Mining Engineering, with Smelting, together with Chemistry and Electro-chemistry; (5) a general department, specially devoted to Mathematics and Physical Science. To these five departments has been added the Department of Commercial Science. The institution, as a whole, is under the general supervision of the Prussian Education Department, and this supervisory power is exercised, so far as it has to be exerted on the spot, through the Royal Regierungs-Präsident as Deputy of the Government, not (as is the case with the secondary schools) through the Provinzial-Schul-Kollegium. The internal affairs of the Hochschule are in the hands of a Rector, Pro-rector, and Senate of seven members, one of the latter being Pro-rector (1901–1902).

(c) The Municipal High School of Commerce (städtische Handels-Hochschule) in Cologne is situated in a new building in the Hansa-Ring. It prides itself, perhaps a little too jubilantly, on being "the first independent Commercial High School in Germany." As the institution is not yet six months old, it is impossible to say at present whether its particular type of organisation is for practical purposes better or worse than those adopted respectively by its elder sisters at Leipzig and Aachen. Moreover, as will be seen below, its constitution is only "independent" in the sense of being devoid of any formal alliance or connection with a University, as is the case at Leipzig; or of organic union with an existing Hochschule, as is the case at Aachen. There are many who will hold that "independence" of this kind may be somewhat dearly bought, and that, in a country where academic and intellectual influences are feebler than is the case in all educational circles in Germany, such "independence" might end, if not in intellectual anæmia, at any rate in a somewhat enfeebling isolation.

The existence of the municipal Handels-Hochschule is due to the far-seeing and public-spirited liberality of the late Geheimrat Gustav von Mevissen, a citizen o. Cologne, who so long ago as 1879 gave a considerable sum of money towards the establishment in Cologne of a Commercial High School, and at his death, in 1899, bequeathed a large additional legacy for the same purpose. Himself engaged in commerce, Gustav von Mevissen was profoundly impressed by the increasing need for higher commercial education. He further placed on record his conviction that there was urgent need in the city of Cologne for some centre of higher intellectual life and effort in order to prevent one-sided money-making tendencies from playing too dominant a part in the communal life of the metropolis of Rhineland. For these reasons, it was his desire to see established in Cologne a Commercial High School of University rank, which would, with the Friedrich-Wilhelm University of Bonn on the one hand, and the Polytechnic High School at Aachen on the other hand, complete the circle of academic institutions in that important region of the German Empire.* Those views were expressed by him twenty years before his death. He lived to see the movement for higher commercial education wax strong in Germany. The Leipzig Handels-Hochschule and the Aachen courses in Commercial Science were opened in the year before his death. The decision of the Technical High School at Aachen to take part in the provision of higher commercial training must have gratified him as an evidence of the growing recognition of the need for the type of education which he had so long advocated; but, on the other hand, must have to some extent disappointed his hope that Bonn, Aachen, and Cologne would each contribute a characteristic part to the three-sided academic ideal of Rhineland.

* *See* "Reden bei der Feier der Eröffnung der Städtischen Handels Hochschule in Köln," p. 10. (Berlin: Julius Springer, 1901.)

Dr. von Mevissen's legacy for the Handels-Hochschule seems to have amounted to more than £37,500, and the City Council of Cologne unanimously voted a further contribution of £13,000, in order that the new institution might be established without further delay. The professors at the University of Bonn rendered willing and valued service in the formation of the plans for the new High School of Commerce.* The City Council of Cologne has unanimously undertaken the financial liability for its maintenance, and has provided accommodation for the lectures and classes. Moreover, the Cologne Chamber of Commerce has voted the sum of £500 a year for five years, in order to provide a Commercial Museum in connection with the Hochschule. Finally, the family and representatives of the late Gustav von Mevissen have cordially furthered the scheme, and their assistance in removing obstacles to the fulfilment of their late relative's desire was very warmly acknowledged by the Oberbürgermeister at the opening ceremony.

These co-operating factors are all duly represented on the governing body of the Handels-Hochschule. The Oberbürgermeister of the city (or his representative) is chairman of the committee of management. The latter further includes (1) one representative appointed by the Prussian Minister for Trade and Industry, in conjunction with the Minister for Public Instruction (an ingenious device for meeting the difficulty of dual central control); (2) the Director of Studies, Professor Dr. Hermann Schumacher; (3) three members of the City Council (the three representatives first chosen are respectively a merchant, an architect, and a solicitor); (4) three members of the teaching staff of the Hochschule; (5) two members of the Cologne Chamber of Commerce; and (6) one member nominated by Frau Geheimrat von Mevissen, a right conferred upon her in recognition of her and her late husband's liberality to the school.

(d) The Academy for Social and Commercial Sciences at Frankfort on the Main (Akademie für Sozial-und Handels-Wissenschaften; Secretary's office, Alte Rothhofstrasse 1) has been established by the City Council of Frankfort, and the Institute for the Common Weal (Institut für Gemeinwohl) with the co-operation of the Frankfort Chamber of Commerce and the Polytechnic Society. The undertaking has received the sanction of three departments of the Prussian Government—viz., the Education Department, the Ministry of Trade and Industry, and the Home Office

* Professor Dr. Gothein of the University of Bonn, who will also lecture on two evenings a week at the Handels-Hochschule at Cologne, was specially and warmly thanked by the Oberbürgermeister of Cologne at the opening ceremony for his untiring aid, and has received by command of the Emperor, in recognition of his services, the third class of the Royal Order of the Crown. This distinction (with two others) was announced at the opening ceremony by the Prussian Minister for Trade and Industry, who was present and spoke at the meeting.

I have not yet seen the detailed constitution of the new Academy, but it may be presumed that the governing body will comprise representatives of the Frankfort City Council, of the Central Authority, of the Institute for the Common Weal, of the Chamber of Commerce, of the Polytechnic Society, and of the Teaching Staff.

The foregoing paragraphs suggest one or two general observations. (1) The Germans rarely, if ever, forget to put representatives of the teaching body on the committees of management of their higher educational institutions. They appreciate the value of expert knowledge, and their confidence is, on the whole, not misplaced. They hold that it is unpractical to attempt to shape the course of a great educational establishment without habitually consulting the officers charged with the actual navigation of the ship. (2) The great German municipalities regard money which is spent on first-rate (not on rubbishy) education as one of the most remunerative of investments. Yet Germans are as reluctant as Englishmen to raise the rates. We can hardly calculate the value of the scientific guidance given to the affairs of a great German municipality by the highly trained and highly paid official (the Oberbürgermeister) who, with similarly skilled lieutenants, presides over the business of the City Council. Analogies between English and German municipalities, which neglect to make full allowance for this characteristic difference between the two systems, are so loosely drawn as to be of small practical use. We in England keep our experts in a subordinate position, letting their advice filter into municipal policy as best it may. In Germany the expert is placed without disguise in the highest position of responsible command. This difference strikes deep into principles of local government. As our communal life grows more complex and city problems more pressing, it may be predicted that something more like the German system will have to be adopted in England, in order to combine efficiency of communal organisation with due regard to municipal thrift. (3) The German municipal authorities have one special advantage over the English in any question related to higher education. They can appeal to a public, through which a perception of what is meant by secondary and higher education of first-rate *intellectual* quality is much more widely diffused than is the case in England. Many more Germans of the middle class have been more thoroughly well taught at school than Englishmen of a corresponding position in society. It is the lack of good secondary education which is hampering us so seriously, and rendering so much of our other educational expenditure less profitable than might otherwise be the case. (4) It is notice-

able that the German City Council, knowing that it holds the purse-strings, does not stickle for an actual majority of votes on the committees of management of these institutions. Thus, all the different interests and types of experience can be represented on these committees, without making the latter unwieldy in point of size. This is an important point. A small committee has generally a much stronger sense of individual responsibility and of pride in its work than a large committee. Its policy is generally more continuous, because there is less risk of shifting and more or less accidental majorities arriving at varying decisions at successive meetings. (5) The Director of Studies has a position of considerable importance on these committees of management. He is the vice-gerent of the governing body; is responsible to them for the general management of the institution; is chairman of the board of studies; and (a point which materially affects his influence with his colleagues on the teaching staff) is qualified to take an important part in the tuition, so far as his onerous administrative duties will allow.

ii. Aims.

It is characteristic of German methods that the statutes of an educational institution generally contain, near their beginning, a clear statement of its aims. In England, educational aims are less frequently formulated in so precise a manner, and sometimes remain obscure.

(*a*) The aims of the Leipzig Handels-Hochschule are defined as follows:—

1. To give a thorough general and commercial education to young men who intend to devote themselves to a commercial career, including banking, book-selling.

2. To provide those who intend to be teachers in commerci schools with an opportunity of prolonging the special prepa tion, theoretical and practical, necessary for their professional efficiency.

3. Further, to afford to practical business people and to persons belonging to allied callings the means of enlarging their knowledge of particular branches of commercial science and commercial practice.

(*b*) The aims of the commercial Science Department of the Technical High School at Aachen are stated as follows:—

To provide a form of academic training in the commercial sciences which cannot be obtained either at the universities, on the one hand, or at a strictly commercial High School on the other.

(1) Primarily, the course is intended for those who will, in the future, become the principals of great commercial firms or industrial establishments; but also (2) for business men who wish to prepare themselves for the conduct of the economic affairs of the nation in commercial associations; (3) for those who will in the future become the officials of commercial associations, *e.g.*, of chambers of commerce; and (4) for university trained teachers who wish subsequently to attach themselves to the teaching staff of an institution for commercial education.

(*c*) The aims of the Handels-Hochschule at Cologne are evidently modelled on those of the corresponding institution at Leipzig. They are as follows:—

1. To give a thorough general and commercial education to young men who intend to devote themselves to a commercial career.

2. To provide those who intend to be teachers in commercial schools with an opportunity of prolonging the special preparation, theoretical and practical, necessary to their practical efficiency as teachers of commercial subjects.

3. To offer to the junior officials in the civil and consular services, to the secretaries of Chambers of Commerce, etc., an opportunity for acquiring technical knowledge of commercial subjects.

4. To furnish men who are already in business, as well as those engaged in allied callings, with an opportunity for extending their knowledge of particular branches of commercial science.

(*d*) The aims of the Academy of Social and Commercial Sciences at Frankfort are as follows:—

1. To provide the higher officials of the civil and municipal services, magistrates, solicitors, and other members of the learned professions, with an opportunity for the deeper and wider study of social and economic problems, and so to promote insight into the significance of economic activity; and at the same time to furnish commercial information and general instructions on subjects connected with the carrying on of industrial operations.

2. To equip persons connected with industry and commerce with that range of information on social and commercial sciences which is required for the full discharge of the duties attached to leading positions in the business world.

3. To give an opportunity to other persons (and particularly to those who already are, or have been, engaged in business) to widen and deepen their knowledge of economic, social, and commercial questions. And the academy has also special regard to the needs of teachers who wish to improve their qualifications for giving instruction in trade schools, technical schools, and continuation classes of various kinds.

iii. Programmes.

(*a*) The programme of the Leipzig Handels-Hochschule for the Winter Semester 1901–02 offers (1) thirty-five courses of instruction on topics closely related to commercial and economic science; (2) instruction in six foreign languages, viz., English, French, Italian, Spanish, Russian, and Chinese; (3) sixteen additional courses, to which the attention of students is directed with a view to their supplementing their strictly technical studies by others of a more general character; (4) a Seminary for teachers of commercial subjects; and (5) instruction in two systems of shorthand (Gabelsberger and Stolze-Schrey) and in typewriting.

Of the courses mentioned under (1), (2), and (3) above, forty-two are provided at the university. This shows how predominant a place is held by academic teachers in the work of the Leipzig higher commercial school. In fact a close examination of the details of the programme suggests the doubt whether an intelligent young man, intending to prepare himself for commercial pursuits, would not do better to matriculate at the University of Leipzig, instead of at the Handels-Hochschule, and take his Ph.D. degree at the end of his course; selecting the latter, in view of his special commercial need, and availing himself of the privilege to attend the more technical courses of instruction provided by the Handels-Hochschule. But no confident answer could be given to this question without taking into account (1) the influences of the atmosphere of the University society as compared with those of the more specifically Commercial High School; (2) the present and future comparative value, in commercial circles, of the Ph.D. and of the Commercial Certificate of the High School respectively; and (3) the advantage of the experienced direction and oversight which would be given by the staff of the Handels-Hochschule, and on which matriculated students of the latter would naturally have the prior claim.

The following are the chief courses of instruction provided for students at the Leipzig Handels-Hochschule in the Winter Semester 1901–02. Those marked with an asterisk are given at the University by members of the University staff, and are, therefore, available to matriculated students of the Commercial High School.

(*a*) *Economics and Statistics.*

* Introduction to Economic Theory.
* Social Economics.
* Economic Problems of the present day (including the agrarian crisis, the movement in the Middle Classes, Commercial Treaties, and Colonial Problems).
* Commercial and Industrial History from the 15th Century to the present time.
* Introduction to the study of Statistics.
* History, Theory and Practice of Statistics.

* Principles of Public Finance.
* German Colonial Policy.

(β) *Law.*

* General introduction to jurisprudence (for non-jurists).
* Commercial Law (various courses).
* Law of Contract.
* Law regulating employment.
* Maritime Law.
* International Law.
* Law regulating Insurance for sickness, accident, and old age.

(γ) *Geography, Study of Articles of Commerce, Technology, etc.*

* Commercial Geography.
* The Turkish Empire.
* The Caribbean Sea and the West Indies.
* Indo-China, the peoples of.
* Ethnography.
* Scientific basis on which to ground a critical estimate of the characteristics of different nations.
* Chemistry in its application to industry and commerce.
* Tropical agriculture with special reference to the German Colonies.

(δ) *Languages.*

English.
French.
Italian.
Spanish.
* Russian (and also special instruction in the Handels-Hochschule).
* Chinese.

(ε) *Commercial Subjects.*

Book-keeping (various courses, adjusted to the needs of different commercial callings).
Commercial Correspondence (various courses, adjusted to the needs of different commercial callings).
Commercial Arithmetic (various courses, adjusted to the needs of different commercial callings).
Commercial Methods, Office Organisation, and the Machinery of Business (practical work in "Bureau").
Shorthand.
Typewriting.

(ζ) *General Courses.*

* History of Europe (various courses).
* History of Germany (various courses).
* History of German Culture and Literature (various courses).
* History and present condition of the Turkish Empire.

(*η*) *Courses specially meant for those intending to qualify as teachers.*

* History of Education in the Nineteenth Century.
* Prussian School Reforms in 1901.
* School Hygiene.
* Practice in Elocution and Voice-production.

(*b*) The Commercial Department of the Royal Technical High School at Aachen offers forty-three courses of instruction in the academic year 1901–02, and among them are the following:—

(*α*) *Economics and Statistics.*

General Economics (two courses).
Economic History.
Commercial Geography (two courses).
Principles of Banking and Currency.
Principles of Public Finance.
Economics of Railway Administration.
Questions of Social Legislation.
Trade and Commercial policy—(i.) Home, (ii.) Foreign.
Introduction to the study of Statistics.
Theory and Practice of Statistics.
Actuarial Science.
Public Health Administration and Industrial Hygiene.
Tariff Legislation.
Comparative study of Currencies, weights and measures, etc., of different countries.

(*β*) *Law.*

Elements of Civil Law.
Law of Contracts.
Laws regulating industrial operations.
Commercial Law. Law of Partnership. Company Law.
Law of Bankruptcy.
Building Laws.
German and other laws regulating insurance.

(*γ*) *Study of Articles of Commerce, Technology, etc.*

Study of various articles of commerce:—

Among those included in the list are Timbers, India Rubber, Resin, Hides, Wool, Horns, Feathers, Ivory, Whalebone, Cochineal, Meat, Fat, Honey, Wax. The course of instruction comprises (1) description of the organisms from which the articles in question are taken; (2) exact description of the different varieties; (3) adulteration and imitation; (4) geographical distribution of the articles in question; (5) chief markets; (6) statistical summary of supply and demand.

Study of mineral substances used in trade and commerce.
Encyclopædic course on Experimental Physics :—

Sound, Light, Heat, Mechanics, Electricity, Magnetism.

Encyclopædic course on Mechanical Engineering :—

Simple parts of machines, Turbines, Windmills, Steam Engines, Gas Engines, Measurement of power.

Chemistry in application to trade and industry :—

Topics dealt with include Gums, Sugar, Brewing, Vinegar making, Glass manufacture, Gas manufacture, Paraffin, Soap, Dyeing.

Practical Chemistry.
Mechanics (two courses).
Building Construction.
Planning and Equipment of Factories.
Telegraphs and Telephones, with practical instruction.
Art applied to industrial and commercial purposes :—

Designing of Placards, Wrappers, etc.
Artistic packing of goods.
Arrangement of goods in shop windows.
Artistic arrangement of Exhibits.

(γ) *Languages.*

English (part of the course includes a description of English political and social life, and an account of any current English questions of interest to German men of business).
French.
Spanish.

(δ) *Commercial Subjects.*

Commercial Arithmetic.
Commercial methods, office organisation and the machinery of business (three courses).
Shorthand.

(c) The Municipal High School of Commerce at Cologne offers the following courses of instruction for the Winter Semester 1901–1902.

(a) *Economics and Statistics.*

Introduction to Economics.
Postulates of Economic Science.
Economic Development of Germany in the Nineteenth Century.
Commercial History.
Social Problems.
The latest problems in commercial policy.
Economic service of railroads: Tariffs and railway rates.
Introduction to the science of statistics.

(β) *Law.*

Civil Law (two courses).
Commercial Law (two courses).
Law of Contracts.
Company Law.
Law of Bankruptcy.
Patent Law.
Law of Insurance.

(γ) *Geography, study of Articles of Commerce, Technology, etc.*

Commercial Geography.
Study of articles of commerce (animal, vegetable, mineral).
Mechanics, with special reference to industrial needs.
Electrotechnics.
Organic Chemistry.
Metals.
Heating and Lighting.
The textile industry.
Industrial Hygiene.

(δ) *Languages.*

English.	Spanish.	Russian.
French.	Italian.	

(ε) *Commercial Subjects.*

Commercial Arithmetic (three courses).
Book-keeping (three courses and seminar for teachers).
Commercial correspondence and office work (two courses).
Shorthand.
Typewriting.

(ζ) *General.*

Introduction to Psychology.
Introduction to the History of Art, as illustrated by the Art Museum of Cologne.
Development of Industrial Art in Europe.
German History (two courses).
English Literature.

(*d*) The Academy for Social and Commercial Sciences at Frankfort-on-the-Main announces the following courses for the winter 1901–02, but the list must be regarded as preliminary and incomplete:—

Introduction to Economics.
Practical Economics.
Social Problems.
Problems of Colonial Policy.
Consular Administration.
Civil Law.

Commercial Law.
Study of articles of Commerce.
Chemistry and Mechanics in their industrial aspects.
Electrotechnics.
Commercial Arithmetic.
Book-keeping.
Commercial Correspondence.
Commercial Geography.
Economic History.
Modern Languages.
History (general).
Philosophy (courses on).

IV. Teaching Staff.

At the Leipzig Handels-Hochschule there are forty-five teachers named in the programme. Of these, twenty-eight are professors at the University of Leipzig; eight are teachers at the Handels-Lehranstalt; seven give instruction in languages (one of the teachers thus employed having recently come to England in order to occupy an important position at the Liverpool School of Commerce); and two are teachers of shorthand.

At Aachen the number of teachers on the staff numbers twenty-six, and of these, nine are professors of the Royal Technical High School (both the Rector, 1901-02, and the Pro-rector of the latter give instruction in the commercial department); five are Dozenten of the Royal Technical High School; one is a director of telegraphs; one is a magistrate; one is a solicitor; one is engaged in business.

At Cologne the staff numbers thirty-one. Of these, seven are on the permanent staff of the Handels-Hochschule; nine are Professors, and one a Privat-Dozent of the University of Bonn, who come over to Cologne to give their lectures, as some of the staff of Reading College come from Oxford*; one is an eminent civil servant, who has been specially charged by the Prussian Minister of Public Works to give a course of lectures on Railway Economics at the Hochschule; and thirteen are residents of Cologne, who are giving lectures at the new institution. Of the latter, one is a councillor and three solicitors of the Upper District Court of Justice; two are directors of local museums; one is Director of the Archives; one is Director of the Local Commercial School; three are members of the teaching profession, and two are business men of the city.

At Frankfort the staff is still in course of formation, but twenty have been already appointed to it. Of these, eight are on the permanent staff of the new institution; one is Professor at the

* Bonn is about three-quarters of an hour from Cologne. There is a good train-service between the two places. From one point of view the Handels-Hochschule at Cologne is a new experiment in University extension.

University of Giessen; one is Professor at the University of Heidelberg; one is Director of the Statistical Department; one is a solicitor; one is a man of business; and the seven others are university graduates, who have undertaken to give special courses at the new Hochschule.

The reader will have observed that, in the case of three out of the four above-mentioned institutions, allusion is made to the fact that one or more local men of business are attached to the teaching staff. The University of Chicago has recently appointed a number of business men as lecturers in its faculty of commerce.* A proposal to the same effect has recently been made by Dr. Lodge, Principal of the University of Birmingham, in an address at Liverpool on Civic Universities. Referring to the suggested institution at Liverpool of a Faculty of Commerce, Dr. Lodge said :—

"Towards the institution of such a faculty as that of commerce we are doubtless all feeling our way, but it seems to me that if we are to turn out men truly educated for the highest kind of commercial pursuits, if we are to raise the status of the commercial man into a truly professional position—a position which men of practical genius have already attained, and always will attain in small numbers by their own unaided abilities and strong character—if we are to raise the general level of commercial training, and make it worthy of the greatness of the part which commerce plays and always has played in the history of the world, we *shall have to take a medical school as our pattern. One man cannot do it; a whole faculty is necessary, and the greater number of that faculty will, I expect, be men not holding endowed chairs, nor able to spare much time for teaching, but men really and actively engaged in the work itself; men of ability, leaders in business, who, like the prominent doctors in a city, may be willing to come down for an hour a day, or a few hours a week, and give to students the benefit of their great and always growing experience.* I do not say that it will be an easy matter to find men of business able and willing to do this, but I see no other way of getting it done that is likely to be half so good. I see no other way of dealing with the multifarious details and the immense variety of business transactions in such a place as this; and even now I feel that in this city we could put our finger on men who are competent to teach, and who might be willing to teach, and to fill up the outlines and fundamental principles laid down by a few endowed professors, from a sense of public spirit and a feeling of duty which they owe to the coming generation, and to the welfare of the country at large. So also, some day it may be expected that, at one or other of the colleges, a theological faculty will arise, on lines not altogether different. And perhaps, for all I know, in some places, a military and a naval college too. For all the professions, and for those subjects which are going to be professions, the example of a medical curriculum, with its five years of combined theoretical and practical training, seems to me the one to follow, with modifications appropriate to special cases."—*Manchester Guardian*, October 14th, 1901.

It will be generally felt that such an arrangement, if practicable, would be excellent, but its feasibility as a permanent, smoothly-

* *See* Mr. Hartog's paper on "Commercial Education in America," in Vol. 10 of this series.

working, and useful piece of organisation really depends on the fulfilment of two conditions—viz. (1) that the selected men of business should be skilful in the art of teaching, and (2) that the leaders of industry and commerce should regard their business position and opportunities, not as held by them primarily for their own personal profit and exclusive advantage, but as having attached to them certain professional responsibilities.

Of these two conditions the first is undoubtedly the humbler, but yet not devoid of great practical importance. The power is not given to everybody (and business men are no exceptions) to communicate his knowledge in the form, order, and measure which interest, enlighten, and impress the mind of the learner. Some few men are naturally gifted with the teacher's knack. Many more can learn it by dint of great pains, long trying, and frank criticism. But a great multitude neither possess the knack nor realise that they are devoid of it. And it is to be feared that both Germans and Americans more commonly possess it than Englishmen. An Englishman is apt to be a little ashamed of being didactic. He is afraid of being a bore. Through nervousness, or lack of natural or acquired skill in teaching, he often crowds too much into his lesson, or leaves out necessary links of his argument, or omits indispensable bits of illustration, or is painfully incoherent and even inarticulate. It must be remembered that he may never have been brought into contact with a really good teacher during his schooldays, or, if he were so brought, it is as likely as not that he hated the subject which the good teacher wished to make him learn. Furthermore, in order to teach a subject a man needs to know it in a different way to that which suffices for successful action. He has to present to his pupils considerable portions of the subject which for practical purposes in his own case he can afford to neglect. This fact is often an obstacle to a practical man who desires to impart to others a knowledge of his craft. He finds that he has to make explicit in words what he has for years been content to leave implicit in action.

The second condition, however, takes us into much deeper waters. It is proposed that the leading men of business in a university town (during, it must be remembered, their most active years) should give instruction at the university or university college, practically to all who might care to come, in the principles and practice of their trade. The argument is based on the analogy of the leading doctors of the same city, who make a similar sacrifice of time and strength in teaching students at the hospitals. Now, it must be remembered that the case of the sick and suffering in a hospital exert a moral claim on the conscience of the doctor which is of quite a different character to the claim likely to be exerted on the conscience of a prosperous and hard-worked man of business by the callow students of commercial science in an academic lecture-room. Moreover, by his visits to the hospital the doctor is gaining new experience from his "cases," whereas the man of business

would gain no new experience from his discourses at the university, except, perhaps, that of the great difficulty of delivering a good lecture. Nor does the unlikeness stop here. The whole conduct of a doctor's life rests on the professional idea: the conduct of a business man's business life has heretofore in most (though not in all) cases mainly rested on the profit-making idea. The etiquette which regulates the one man has virtually no existence in the case of the other. There is a deep difference between the ideals implicit in the two phrases "Business is business" and "It is my duty as a professional man." The doctor is bound by the honour of his profession not to keep secret any scientific discovery in order to derive from it personal profit. The trader regards a scientific monopoly or a secret process as a lucrative source of income. But the proposal that the business man should expound at the university the principles on which he successfully carries on his business really involves the abandonment by the business man of his former standpoint, and his coming over to the professional idea of the more liberal callings. This excellent change is more likely to come about if we do not attempt to disguise from ourselves its immense moral as well as economic significance. *Ex hypothesi*, the university will want, and the commercial students will most welcome, the men of business who have shown mastery in their calling. The fourth or fifth rate men of business, the failures or the self-advertisers, would not be welcome, and would not enhance the prestige of the university. Suppose, then, that a brilliant organiser of distributive concerns undertook to give a course of lectures on the art and science of shop-keeping on a large scale. He would have to prepare himself to see on the benches of his lecture-room the faces of many formidable competitors, anxious to pick up a few ideas from his successful experience. Yet it would be a doubtful act on the lecturer's part if, in order to escape the danger of being plagiarised, he practised a disingenuous economy of scientific or artistic truth. But, if he blurted out his secret methods, would he not justly feel that he was probably giving away thousands of pounds to some young man who might soon become his pitiless competitor?

Illustrations might be multiplied, but it is unnecessary to elaborate the point any further. True, there is in most callings (or rather in most callings as practised by most people) a certain neutral ground of common practice, which might well be described without any risk of personal loss. But this is exactly the part of "commercial science" which a skilful teacher, interested in business matters, could without much difficulty "get up" and skilfully expound. What the great man of business might usefully do in a course of lectures at the university would be to impart to his subject that indescribable touch of mastery, significance, and charm which genius alone can give.

It is noteworthy, however, at the present time from how many quarters this suggestion comes that the great men of business

should act in regard to the subject-matter of their art and science in the same professional spirit as doctors in regard to theirs. Several times, in the speeches delivered at the opening of the Commercial High School at Cologne, the note was struck that the rising generation of business men must be taught to be disinterested. And who will not most thankfully acknowledge the noble and disinterested benevolence which has actuated great numbers of men of business, more especially in this country? It is not in England that the hard "business" view has been most habitually pressed in commercial dealings. But competition is getting keener; economic relations are becoming more abstract; and it may well be that these anxious pleas for more "disinterestedness" in business are rather an expression of men's desires than an outcome of their sober forecast of the future. Or, some might say, these hopes are but an anticipation of what will be habitual when all trade and industry are "collectivised," and when the type of men who in this generation become successful leaders of commerce will, as salaried officials, communicate in occasional lectures to students of commercial faculties the details of their administrative routine.* But at any rate it will be generally agreed that whatever helps to give to trade and commerce the dignity of a profession will add to their moral prestige, will make men readier to discuss their principles and methods in the spirit of frank scientific inquiry, and will remove some of the repugnance with which the upholders of a more liberal culture instinctively regard the coarser kinds of commercial education.

A letter by Mr. Algernon Warren on "The Dignity of Commerce," printed in the *Times* of October 7th, 1901, gave singularly clear expression to a sense of the contrast between the ethical atmosphere of an English public school, which is professional in spirit, and the atmosphere of ordinary commercial life. Though I do not feel sanguine as to the success of Mr. Warren's suggested remedy, I venture to quote a few paragraphs of his letter as showing how powerfully certain ethical considerations affect the problem of commercial training.

" . . . To many a youth the entry into commercial life is a sad disillusion, if he has come to it from a public school. There he has had inculcated into him principles of honour and self-abnegation. While it

* One or two instances almost amounting to this might already be quoted from Germany. The Germans are also showing, as indeed they have shown in earlier epochs of their commercial history, a remarkable faculty for what may be called "Guild action" in commerce and industry. They appreciate the interest and dignity of the scientific aspect of business, apart from its pecuniary returns. They are more disposed to bring their intellectual efforts for the betterment of trade "into hotchpot" than we are. They combine, and profit by combining, where English traders, at all events till recently, seemed unable to overcome their tendency to expensive isolation. Compare Mr. Haldane's interesting account of the Central-Stelle, maintained for scientific research by a combination of rival manufacturers of explosives in Germany at an initial cost of about £100,000, and annual expense of about £12,000.—*Times*, October 23rd, 1901.

has been impressed upon him that he must be manly and self-reliant, he has been ever taught to sacrifice himself in various forms for the benefit of the others, and has witnessed the other boys doing the same; and when he enters his new school, that is, the commercial arena, a sense of repulsion and disgust with his surroundings is apt to seize him when he sees so many around him each fighting, as it were, for his own hand. It will be said that he, by entering into commerce, will be a contributor to an element which is lacking and sorely needed. But none the less it is certain that his previous educational training has been that which makes the contrast of the commercial atmosphere the more repugnant. It is usually less so for the boy who has been taught in a grammar school or commercial seminary. There he has had more foretaste of his future career; those around him are mainly boys whose fathers are in trade, and who have inherited the trader's instinct of acquisition, which gives so keen a pleasure that it more than compensates for the attendant discomforts to those who are thoroughly imbued with it.

* * * * * * *

" . . . The broader views held by public school masters and the greater toleration of religious creeds other than that of the Established Church of England have resulted in a greatly increased influx of the sons of commercial men into such schools; and in many cases the result has been that, although their boys may have largely benefited by entrance there, by the high moral standard and by the spirit of manliness and conscientiousness, they have been thrown amongst a large section of boys destined for avocations other than trade; and it is natural that their tastes and inclinations should be diverted, so that when the time comes for leaving they go half-heartedly into commerce, envying those of their fellows who prolong their studies at the Universities or who qualify for learned professions elsewhere. The detail work to which they are likely to be put at first will be a drudgery to them, for merchants and manufacturers still cling largely to the idea that as they begun so should their sons (with letter copying, indexing, etc.). The result of this is that large numbers of boys who enter trade with fair prospects before them of earning competences get restless, and forsake it before they have properly proved whether they are likely to succeed or not, and emigrate, or turn to overcrowded professions, thereby causing much trouble and expense to their parents.

" What remedies, then, can be suggested? The establishing of special classes dealing with commercial subjects has been advocated. But who is to teach them? Those who are well acquainted with the average types of public school boy will readily apprehend that they are not likely to take heartily to commercial details if imparted to them by men of the *status* and calibre of the ordinary city clerk.

" What is needed is that the minds of the boys about to enter on commercial life should be instilled with the dignity of commerce and made alive to its benefit to the community. Infinite good might result could well-educated merchants and manufacturers of acknowledged position be induced to deliver courses of lectures at public schools on commercial topics. It is true that this would entail a sacrifice on them of some of their hard-earned leisure, and that were recompense tendered them in pecuniary form it could scarcely fail to be inadequate. But the appeal to them should be one on the ground of philanthropy. Their words would carry immense weight. Who has ever read such a work as 'The Pleasures of Life' without being conscious of the influence for good which its writer, a man of high position in the commercial world, has been able to impart? And he does not stand alone. There are others such as he, men who have control over vast commercial operations, and whose words are looked for and listened to. And, if these would come and speak out before the intelligent audience of the public school, and interest their hearers by discourses calculated to impress upon them both the dignity and the

importance of commerce, the boys would thereby acquire a greater respect for it, and not merely look on it as some are prone to do—viz., as the shortest means of acquiring luxury—but would regard it as an indispensable factor of ineffable value in the universe; and the drudgery of the details at the commencement of their commercial life would be endured more cheerfully by the majority, owing to the clearer vista of the honourable position to be obtained in the future."

V. Admission of Students.

(*a*) At the Leipzig Handels-Hochschule the following are qualified for admission as students:—

1. Youths who have completed, to the satisfaction of the Government board of inspectors, the full nine years' course (ten to nineteen years of age, or over) at a public secondary school in Germany, whether classical, semi-classical, or non-classical (Gymnasium, Realgymnasium, or Oberrealschule).
2. Youths who have similarly completed the full nine years' course at those higher commercial schools which rank with the secondary schools named in (1) above.
3. Male teachers, trained at a Government normal school for elementary school teachers, who have already passed their second examination for a teacher's certificate.
4. Youths or men already in business who have completed, to the satisfaction of the Government board of inspectors, a six years' course at a public secondary school (*i.e.*, the whole of the course at a Progymnasium, Realprogymnasium, or Realschule, or the first two-thirds of the course at a Gymnasium, Realgymnasium, or Oberrealschule) and thus have obtained the certificate "zum einjährig-freiwilligen Dienst," provided that they can show the requisite intellectual maturity for the work of the Handels-Hochschule.

The "Matriculation Committee" (which consists of four members, viz., of the Director of Studies, the representative of the Saxon Government on the Senate of the Handels-Hochschule, a member of the Chamber of Commerce, and a Professor of the University of Leipzig, the last two being chosen by the Senate of the Handels-Hochschule) is charged with the duty of deciding any doubtful questions of intellectual maturity in the case of applicants for admission. This is a necessary provision, as, under (4) above, a boy might apply for admission in his seventeenth year. The matriculation committee also determines, in the case of foreign candidates for admission, whether they have enjoyed adequate previous education to enable them to profit by the courses of instruction offered by the Handels-Hochschule.

(*b*) The terms of admission to the Commercial Department of the Royal Technical High School at Aachen are harder than in the case of the other three institutions now under review. No German student may be admitted who has not obtained his promotion into the top class of a public secondary school with a full nine years' course. Foreign students have to satisfy the authorities

of the high school that they possess some corresponding educational qualification.

(*c*) and (*d*) The conditions for admission to the Municipal Handels-Hochschulen at Cologne and Frankfort are the same as those in force at Leipzig, with the significant addition that at Frankfort women may be admitted who have completed a full course of nine years' study at a secondary school for girls, or possess an equivalent qualification.

The reader will observe that the work of the German Higher Commercial Schools rests on the foundation of an intelligibly organised, intellectually efficient, and administratively "standardized" system of secondary education.*

The work of the Handels-Hochschulen presupposes a constant supply of students who (1) have acquired at school a definite and well-digested store of general knowledge; (2) have learnt how to learn; and (3) have been steeped in the German feeling of respect for organised knowledge (Wissenschaft). Like all the other types of Hochschulen in Germany, the Higher Commercial Schools may be compared to a soaring roof, resting on the strong, well-built walls of a thorough secondary education. Without those walls to build upon, the plans of the promoters of the Commercial High Schools would be but castles in the air.

Experience is as yet insufficient to show what type of curriculum in a secondary school is *ceteris paribus* the best preparation for the studies of a Handels-Hochschule. Dr. Raydt, of Leipzig, is *personally* of opinion that the best preparatory training is that given at such an institution as the Handels-Lehranstalt at Leipzig (*i.e.*, from nine to seventeen years of age), followed by two years' apprenticeship in a house of business. The course at the Handels-Hochschule would extend over two years, and be followed by a period of residence abroad.

VI. Diplomas and Courses of Study.

The full course of study in the Handels-Hochschulen of Leipzig and Cologne, and in the Commercial Department of the Royal Technical High School at Aachen, extends over four semesters, *i.e.*, two academic years. The course of study at Frankfort is not defined in the announcement at my disposal, but it will presumably extend over a corresponding period. In all four cases, students may take parts of the full course at discretion, and even single courses. In view of the varied needs and circumstances of the persons attending the new institutions no other arrangement would be reasonable.

* The only exception to this is the admission at Leipzig, Cologne, and Frankfort of certificated teachers who have passed through the Government Training Colleges for elementary school teachers. But the candidates thus qualified have been through an exacting course of intellectual discipline, though in a less "liberal" atmosphere than prevails in the secondary schools.

Leipzig and Cologne prescribe the two years' course in outline, in order to regulate the order of studies. In Aachen there is no obligatory course of study, but the courses of instruction are so arranged as to furnish a proper selection and succession of subjects.

At all the institutions, the vacations follow the arrangements in force at the German universities.

At Leipzig and Cologne the year's work begins in April (though students may enter at other times); at Aachen and Frankfort it begins in October. At Aachen, the authorities of the commercial department advise young men who may leave school at Easter not to come to the Hochschule till the following October, and to devote the intervening summer semester to foreign travel, or to practical work in a business establishment.

At Leipzig, Aachen, and Cologne students can be examined at the end of the two years' course, and, if successful, receive a certificate. Success in this examination confers no degree. Doubtless, however, there are some who hope that the day may come when Handels-Hochschulen will be able to confer the degree of Doctor of Commercial Science.

The Leipzig Handels-Hochschule also awards a diploma certifying fitness to teach commercial subjects. Special regulations, particularly designed to secure the candidate's knowledge of modern languages and attainment in the specifically commercial branches of instruction provided at the Hochschule, are laid down for the award of this diploma, which is given after an examination at the conclusion of two years' study. The compulsory subjects are (1) Higher Commercial Arithmetic; (2) Book-keeping; (3) German commercial correspondence and office routine; (4) Economics, Principles of Public Finance, and outlines of Commercial History; (5) Commercial Law; (6) Outlines of Commercial Geography, together with evidence that the candidate has sufficient power of reading and speaking English and French. The examination itself consists of four parts:—

(1) A theme written by the candidate at home during a period of six weeks before the examination. The subject of the theme must be drawn from Economics, Commercial Law, Commercial History, or Commercial Geography. The candidate has to certify what books, etc., he consulted in the composition of the theme.

(2) A written examination, in a closed room, extending over four hours in each subject offered by the candidate.

(3) *Vivâ voce* examination in all the obligatory subjects. Each candidate has to be examined not less than three-quarters of an hour, but from two to four candidates can be taken together.

(4) After passing (1), (2), and (3) the candidate has to give a trial lesson, at the Handels-Lehranstalt, on a subject assigned by the examiners. The candidate receives twenty-four hours' notice of the subject, and is submitted at the close of the trial lesson to a *vivâ voce* examination on methods of teaching.

VII. Statistics of Attendance.

(*a*) The following table shows the number of students at the Leipzig Handels-Hochschule since its opening in 1898 :—

First Semester.		Summer, 1898	97
Second	„	Winter, 1898–99	139
Third	„	Summer, 1899	194
Fourth	„	Winter, 1899–1900	243
Fifth	„	Summer, 1900	262
Sixth	„	Winter, 1900–1901	304

The total number of students who *matriculated* at the Handels-Hochschule, during the first three years of its existence, was 639.

The following table shows the age of the students at the Leipzig Handels-Hochschule, and the numbers respectively of German citizens and of foreigners among the students, in the Winter Semester, 1900–1901.

Age of the Students.	German Citizens.	Foreigners.	Total.
18 years	10	22	32
19 „	30	26	56
20 „	43	16	59
21 „	33	15	48
22 „	31	20	51
23 „	27	9	36
24 „	23	5	28
25 „	11	5	16
26–30 years	23	8	31
Over 30 years	17	4	21
Total	248	130	378

Thus, more than half of the students are aged 19–22, *i.e.*, are of the age which corresponds to the wishes of the founders of the institution. Nearly one-third of the students are foreigners.

It is possible that this large international element may be regarded as having some advantages. It will certainly provide opportunities

for comparisons of experience and for interesting intercourse; and these may add to the liveliness of the discussions, and otherwise stimulate intellectual activity. But so large an admixture of foreigners in an educational institution has grave drawbacks. The presence of such heterogeneous elements nearly always lessens the average quickness of a class. The common personality of the class (on which the teacher so much depends) forms itself more slowly. There are difficulties about language. Some of the foreigners do not quickly apprehend all the *nuances* of expression. And, in discussing somewhat delicate matters of international concern, there are frequent opportunities for misunderstanding.

The following tables show (1) from what States of the German Empire, and (2) from what other countries, the German and foreign students respectively come. The preponderance of Prussians in the one group, and of Russians in the other, is noticeable.

German Empire. *Total*, 248.		Foreigners. *Total*, 130.	
Prussia	133	Austria-Hungary	24
Kingdom of Saxony	60	Belgium	3
Anhalt	7	Bulgaria	4
Baden	3	Denmark	2
Bavaria	13	France	1
Brunswick	6	Great Britain	1
Alsace-Lorraine	2	Greece	1
Hamburg	2	Italy	4
Hesse	2	Norway	1
Mecklenburg-Schwerin	4	Roumania	3
Mecklenburg-Strelitz	1	Russia	63
Oldenburg	1	Servia	6
Sachsen-Altenburg	5	Sweden	3
Saxe-Coburg-Gotha	1	Switzerland	7
Saxe-Meiningen	1	Turkey	4
Saxe-Weimar	3	North America	2
Schwarzburg-Sondershausen	1	South America	1
Württemberg	3		
	248		130

The following table shows, in respect of each of the two last winter semesters, the previous education of the students. Unfortunately the statistics do not show the type of secondary school which was attended by those students who intercalated a period of practical

business life between the close of their secondary school-days at sixteen and their admission to the Commercial High School.

	Winter Semester, 1899–1900.			Winter Semester, 1900–1901.		
	German Citizens.	Foreigners.	Total.	German Citizens.	Foreigners.	Total.
Students who, after spending six years at a Secondary School (10–16), were for a time engaged in business before entering the Commercial High School.	108	28	136	129	28	157
Students who entered the Commercial High School direct from the top class of a classical Secondary School (9 years' course).	20	23	43	23	32	55
Students who entered the Commercial High School direct from the top class of a semi-classical Secondary School (9 years' course).	5	–	5	8	–	8
Students who entered the Commercial High School direct from the top class of a non-classical Secondary School (9 years' course).	1	8	9	2	14	16
Students who entered the Commercial High School direct from the top class of a fully privileged Commercial or Industrial School with a nine years' course of study.	1	9	10	4	32	36
Teachers who have been trained at a Training College for Elementary School teachers, and therefore have not been at a public Secondary School.	37	–	37	30	2	32
Students drawn from other callings, nature of previous education not specified in statistics.	3	–	3	–	–	–
Total - - - -	175	68	243	196	108	304

In the course of the academic year 1900-1901 two examinations were held at the Leipzig Handels-Hochschule. One of these examinations was for the award of the diploma for men of business. Twenty-six candidates presented themselves; twenty obtained the diploma. Of these one passed as "very good," eight passed as "good," and eleven as "sufficient." Of the six candidates who failed, five were foreigners. There were nine foreigners among the twenty candidates who obtained diplomas. The other examination was for the "Commercial teacher's certificate." Nine candidates presented themselves; three withdrew during the examination; the six who remained obtained certificates—one gaining a certificate of the first grade, four of the second, and one of the third.

These statistics about the examinations for diplomas and certificates seem to indicate that (except perhaps in the case of the teacher-students) those who attend the Hochschule do not as yet set much store by entering for the final examination and getting a certificate. Of the teacher-students, 28·1 per cent. entered for their special examination, but only 8·5 of the other students entered for the examination for the general diploma. Of the foreign students, 12·9, but only 6·1 of the German students, entered for the diploma examination.*

(*b*) The following table gives the attendance at the Commercial Department of the Royal Technical High School at Aachen since its establishment.†

——	Enrolled Students.	Persons allowed to attend the lectures, though not qualified to be enrolled. "Hospitanten."	Total.
Winter Semester, 1898–1899	9	10	19
Summer „ 1899 - -	12	11	23
Winter „ 1899–1900	9	11	20
Summer „ 1900 -	9	7	16
Winter „ 1900–1901	10	9	19
Summer „ 1901 -	12	7	19

* *See* "Drittes Jahresbericht der Handels-Hochschule zu Leipzig." Leipzig, Max Hesse, 1901.

† "Programm der Königlichen Technischen Hochschule zu Aachen, f r das Studienjahr, 1901–1902" (Aachen, Georgi), p. iii.

(c) At the Handels-Hochschule in Cologne there were 130 regular students during the first semester. Of these, sixty-eight were matriculated students, eighteen were teachers preparing themselves to give instruction in commercial subjects, and forty-four were persons who, though not matriculated, were allowed to attend the lectures (Hospitanten). In addition, the courses of public lectures were attended by 629 hearers.*

VIII. Fees.

Leipzig.—Entrance fee, £1. The student pays in addition a fee for each course which he attends.

Aachen.—The student pays according to the courses which he attends.

Cologne.—Matriculation fee, £1. College fee for admission to lectures, per semester—

(1) For German students, £6 5s.

(2) For foreign students, £12 10s.

"Hospitanten" pay a fee for each course attended, foreigners paying twice as much as Germans.

Frankfort.—Regular students pay for admission to lectures, per semester—

(1) If Germans, £6 5s.

(2) If foreigners, £12 10s.

"Hospitanten" pay a fee for each course attended, foreigners paying twice as much as Germans.

III

The reader may ask why there has been such a rapid development of these Commercial High Schools in Germany during the last three years. It may be replied that a number of reasons have contributed to this remarkable growth :—(1) There is an increasing belief in commercial circles in Germany that the older forms of commercial education are inadequate to the needs of men who look forward to becoming leaders in modern trade. The old and often excellent training given through apprenticeship is becoming virtually obsolete. Far-seeing men of business in Germany would apply to the case of their own sons the words recently used by the Lieutenant-Governor of the Punjab when he installed the young Maharajah of Patiala: "The march of events and the change of modern ideas render it necessary that those destined to be rulers and leaders should be qualified to deal, not only with the questions of an age now passing away, but also with those of the present

* *Hochschul-Nachrichten*, Heft 131/132. August–September, 1901.

and future. . . . It may be a fascinating theory that a boy . . . should be brought up in the old school, and trained only in the old ways; but the times move too fast for this. If you would guard the coming race of rulers from failure, you must equip them for the march of events and the difficulties of the hour."* (2) The Germans have inherited a noble and intense belief in "Wissenschaft." This belief, which is ethical and æsthetic as well as intellectual, is the great glory of the German nation. Its influence is nobly shown in the breadth of view and intellectual composure of the best type of Germans, and its indirect results can be traced in the wonderful achievements of the German people—achievements of unity reached through subordination and co-operation, in spite of a persistent tendency to isolation and excessive individualism, which has shown itself at many points throughout German history. The ordinary German plods and perseveres; but he plods along a line which science has marked out for him, and perseveres as one unit in a combination which has been ordained for him by some superior intelligence. It being thus the intellectual habit of the best Germans to study every aspect of life in a scientific spirit, the argument that the momentous and gigantic problems of modern trade and industry ought to be subjected to the most searching scientific investigation seems to them irresistible. Nor do they doubt for a moment that such investigation is certain to be extraordinarily interesting and may be profitable. All the great professions, the German argues, are approached through an avenue of prolonged professional training. Modern commerce is attaining to the dignity of a great profession. It should, therefore, have its course of professional preparation of the highest university type. (3) Germany has become again what she was in the Middle Ages—a great commercial Power. Trading instincts are native to the German character. Since her political and economic unification, the German Empire has advanced with gigantic strides in its commercial undertakings. German financial and commercial development (as is shown by the life of Johann Georg von Siemens, the great director of the Deutsche Bank) has been intimately connected with German *Weltpolitik*. There is a marked feeling of national pride in German commercial success, and a strong desire to establish that success and to extend it. Germans feel that they must secure foreign markets for the products of German industry. Moreover, they are possessed with the ambition to make Germany a very great power in the world. Such a policy must have a firm economic basis. Hence nothing must be left undone in the effort to improve the intellectual vigour and practical skill of German men of business. The characteristically German way of accomplishing such improvements is to establish a new, intellectually efficient, and skilfully adapted course of higher education. Moreover, some Germans seem to cherish the hope that sea power and foreign trade may

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Times, October 25th, 1901.

introduce into German life some of the elements of successful opposition to excessive bureaucratic control. The great fabric of central administration in Prussia was built up under the powerful influence of two ideas—Kant's doctrine of Duty and Fichte's conception of an economically balanced and self-sufficing State. So far as the second of these two ideas are concerned, the trend of events has carried Germany far away from Fichte's ideal. The commercial and industrial elements have heavily outweighed the agrarian. But the administrative organisation has not yet been fully readjusted to all that is implied by this deep-seated economic change. (4) There has been a shifting of the centre of political gravity in Germany as in Europe at large. The commercial and monied classes are growing in importance. Those therefore who will be the leaders of the commercial classes in the next generation must be educated up to their new position. Grades of education have a much more definite social significance in Germany than in England. Higher commercial education will, it is hoped, produce a type of commercial leaders qualified to take high positions in the Government. Commercial callings will then enjoy higher social consideration. The commercial classes will no longer have the mortification of seeing great administrative positions bestowed on "Juristen" instead of on men of business. In fact the type of man who now becomes a "Jurist" will find it better to his interest to devote himself to commerce, as an avenue to a political and administrative career. (5) The generation of German men of business, which has built up modern German trade, got much of its education by living through stirring times and by taking an active part in the construction of the new conditions.* But the rising generation will find the conditions ready-made for it; it will be virtually deprived of one of the educational disciplines from which the previous generation learned so much. At the same time it will have to defend German commerce against the ever-renewed attacks of competing nations. Fear of the future competition of America haunts many German minds. It is necessary therefore (many of the more thoughtful Germans are disposed to urge) to give to the rising generation the best possible commercial training in order that scientific instruction may make up for the lack of the rougher education ensured by creative effort. (6) Many feel too (and the feeling is not confined to Germany) that the old educational tradition is somewhat outworn and obsolete. A new type of education is looked for, in view of the changed needs of modern life. This new type of education must be intellectually severe, morally inspiring, and in close relation to the facts and opportunities of the modern world. Higher commercial education on liberal lines is one of several

* A German writer has recently pointed out what a small group of men really built up modern German commerce and finance. A typical leader in that group was the late Dr. Georg von Siemens. An excellent account of his life appeared in the *Times* of October 25th, 1901, from its Berlin correspondent.

efforts which are being made to re-write the old educational tradition. (7) But there are others who maintain that the *aims* of the old liberal culture were infinitely higher and more ennobling than any tacit or avowed inculcation of covetousness as a ruling principle in life. Yet, they continue, if the *aims* of the older culture are to be retained, the *vehicle*, by means of which a love for those aims was imparted, must now be changed. Those who incline to this view hope that a liberal type of higher commercial education may do something to divert men from a narrow profit-seeking type of business ambition, and to substitute something of the enthusiasm of scientific inquiry for the baser and more selfish motives of personal gain. And if, in the course of generations, the profits of capital and the wages of management must tend to decline; if trade and industry promise to become more "collectivised" and to be less and less the sphere of the independent trader, so that the type of man who is now in business on his own account will as a rule be serving as the paid official of State or corporation; then, they would argue, we shall do well if, in the meantime, we do all in our power to strengthen the scientific, as distinguished from the profit-seeking, interest in business. The scientist who loves his work has a more choice-worthy life than the self-regarding devotee of profits.

But there are other reasons for the rapid growth of Higher Commercial Schools in Germany during recent years. Signs of municipal rivalry seem to show themselves in the accounts of the efforts made to establish Handels-Hochschulen in Frankfort as well as in Cologne. The latter city rejoices once again to be able to number a Hochschule among her institutions. In fact, it is hardly too much to say that a great German city is as proud of having a Hochschule as a great English city is of possessing the right to call its chief magistrate Lord Mayor. When Cologne got a commercial Hochschule, there were signs that Frankfort could not long allow herself to remain without. Some shrewd observers suspect that German trade and industry have shot forward somewhat too rapidly and have a little overgrown their strength. The same sort of feeling in regard to the recent rapid increase in Commercial High Schools is reflected in the warning uttered at the opening ceremony of the Cologne Hochschule by Dr. Stegemann, of Brunswick, who has, perhaps, done more than any other single man in Germany to further the interests of the best type of commercial education. He openly said that Germany has got, *for the present*, plenty of Commercial Hochschulen, and deprecated any precipitate advance in this province of education until time and experience had established the work of the institutions which had been already established. It has always been one of the weaknesses of the German character to press things to extremes. And there are not wanting signs of a tendency to press commercial education to an extreme. The strong conservative forces, however, in German education will successfully resist any undue tendency in the direction of purely utilitarian training.

But higher commercial education, as understood by its most intelligent advocates, is by no means narrowly or predominantly utilitarian. It is intended to provide liberal culture through the intelligent and scientific study of the practical problems of modern life. The movement, however, to establish university colleges for this enlightened purpose will have to overcome many formidable difficulties, besides the inertia of established interests. (1) The cost of University Colleges of Commercial Science must needs be exceedingly great. (2) Only a small number of students, capable of profiting by the highest commercial education, is likely at present to be forthcoming. This will make the cost per head seem very large. And, as the institutions will be largely maintained out of public money, and as many of the students most likely to be forthcoming will be drawn from well-to-do families, there is a likelihood of complaints being made that the cities are taxing themselves to give specially valuable educational opportunities to a small group of students, whose parents could afford to make much greater sacrifice on their behalf. (3) The fact is that the supporters of the Higher Commercial Schools are not really in complete unity among themselves. The most enlightened of them know that what is wanted is commercial education of the highest academic type, imparted to a few singularly competent students by a large staff of singularly competent professors, with the ultimate purpose of enhancing, not the personal wealth of the students themselves, but the collective power, influence, and prosperity of the German Empire. But indispensable aid is rendered to the new movement by a number of people whose thoughts on the subject are on a very different level, and who conceive that the new Commercial High Schools will provide (*a*) a quicker road to wealth for the clever students, (*b*) a number of skilled commercial experts who will be hired at cheap rates by manufacturers and employers in the future, and (*c*) an increase of commercial prosperity to the town which establishes the new institution. Doubtless, in a measure, all these hopes may be fulfilled, but, if the true university ideal is maintained in the new Hochschulen, there will be a constant tendency for their work to become scientific and scholarly, rather than utilitarian and immediately lucrative. Also the benefit of the new institution will not be at all strictly limited to the town which taxes itself in its support. Nor will the benefits be confined to the German Empire, for one of the essential characteristics of modern trade is that it is increasingly cosmopolitan in its tendencies, principles, and influence, and therefore alien in spirit to much of the hitherto dominant ideal of German administration. (4) Moreover, there will be a constant difficulty in getting the right kind of teachers. At bottom, there is a conflict of ideals between the two parties, which are combining to establish these Commercial High Schools. Some, at least, desire a more disinterested and scientific form of commercial effort. Others aim at getting an increased power of making money. This unavowed conflict of ideals will often show itself when it is necessary

to select teachers. What type of man will be chosen? The scientific student, with a large, disinterested, though not unpractical, view of the subject; or the more commonplace, rather shallow, but bustling teacher, whose mind is concentrated on the practical minutiæ of commercial life and never plays freely round the underlying questions? The choice of teachers will also, especially in Germany, be attended by a further difficulty. There is likely to be a plentiful supply of what may be called pseudo-practical teachers, "viewy" men, whose notions have the same relation to the actual facts of life as Jules Verne to a Tyneside workshop. (5) In the programmes of the new Commercial High Schools in Germany there is a singular and significant absence of any reference to ethical studies. "I don't do business with humane people" was a favourite maxim of one of the makers of modern German finance. This, however, is a perilous doctrine—not least perilous to the nation which applies it or approves of its application. During the last two generations German thought has, in more than one department, grotesquely exaggerated the influence of purely economic factors in human development. Against this tendency, itself a reaction against an opposite exaggeration, there are now signs of another reaction still. But if at this moment a number of Higher Commercial Institutions are established, each in a sort of intellectual backwater of its own, there is every likelihood that history would be taught (and not history alone), in mischievously distorted perspective, and with a misleading economic bias.

The questions of modern industry and commerce are inseparably bound up with ethical questions, and no kind of training for the business men and employers of the future can be permanently beneficial which fails to inculcate clear, moral principle as well as clever, economic calculation.

But on two points of fundamental importance Germany is teaching the world lessons which cannot be too often repeated. It is a blunder to specialise too early in life. And the only possible basis for a successful system of higher education (be it commercial, technical, or professional) is to be found in an intellectually thorough, readily accessible and morally vigorous system of secondary education. Where Germany is in danger of losing much of the benefit which a good system of secondary education might confer is that she thinks too much of the purely intellectual side of instruction, and devotes too little time and thought to school-games and to the formation of character.

M. E. SADLER.

October, 1901.

ON THE MEASUREMENT OF MENTAL FATIGUE IN GERMANY.

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In order, therefore, to glean some knowledge of the subject which might be turned to good account, he sent round a list of queries to various prominent educationists and teachers, asking for information derived from observations either on themselves or their pupils on the following points:—

1. The symptoms of mental fatigue.
2. The types of disease due to overwork.
3. Signs of commencing fatigue.

Of the 116 answers returned, Galton made a statistical report, expressly refraining from criticism and only arranging the various observations according to their physiological or psychological standpoint, and in the case of conflicting statements saying how often they recurred in the replies sent in. Material obtained in this fashion can of course scarcely be regarded as conclusive evidence. Among the replies received were some which even questioned the very possibility of such a thing as mental overwork, and it is not unlikely that some of the statements made were influenced by personal interest or by the point of view previously adopted in the matter.

Nevertheless the report contained much that might serve to stimulate further inquiry into, and more exact observation of the phenomenon of mental fatigue.

Amongst other conclusions, it is worthy of notice that the replies were tolerably unanimous with regard to the opinion that symptoms of overwork set in more frequently in the case of persons who work independently than with those whose work is done under supervision, more frequently, in fact, among teachers than among the taught, and those who cherish ideal aims and neglect their health in the pursuit of these are the most liable to become its victims.*

The immediate object of those who have initiated investigations into the subject of mental fatigue has been to devise methods of ascertaining and expressing numerically the capacity for work of the individual. This accomplished, it becomes possible to compare work done in a fatigued, with that done in a normal state, or to compare the physical or nervous state of the individual before and after work done, and thus secure a comparative measure of the fatigue engendered by a definite amount of work.

The methods hitherto employed can be most simply classified under three heads.

The first, which may be termed the "Physical or Muscular Test," consists in drawing conclusions as to the presence and extent of mental fatigue by measuring the loss of muscle power thereby entailed, and depends on the well-known physiological principle that fatigue produced by mental work is not confined to the brain but reacts on the whole system, producing a reduced capacity for physical labour.

* Clinical reports on the consequences of overwork are to be found in *Ufer*, Geistes-störungen in der Schule, Wiesbaden, 1891; *Kussmaul*, Die Störungen der Sprache, p. 189; *Ribot*, Das Gedächtnis und seine Storungen, p. 92.

The second and more direct method is a mental test. Here conclusions respecting fatigue, recuperation and capacity for work are drawn from the results of mental work itself, set under definite conditions as to time or quantity. This method has hitherto been more generally employed by investigators than either of the other two.

The third method, and the one which of all the three undoubtedly gives the greatest promise of proving a reliable means of gauging the degree of mental fatigue present at any time, is based on the principle that mental work always produces loss of nervous tension or tone, resulting in diminished sensitiveness of the skin, particularly in certain parts, and the measurement of the sensitiveness of the skin would seem to afford a fairly constant and reliable index to the degree of fatigue produced. The instrument made use of for this purpose is known as the Æsthesiometer.

The application of the first of the above-mentioned methods is due to Mosso, Professor of Physiology in Turin, who perfected a method of measuring the work done by a certain group of muscles in raising a definite weight again and again at regular intervals until complete exhaustion ensued.*

For this purpose Mosso hit upon the idea of employing an adapted form of the Myograph, an instrument devised by H. von Helmholtz for recording muscular contractions, the principle of which may be gathered from the following well-known experiments:—

The leg of a frog is separated from the rest of the body, and to its extremity a pencil is attached, which is so arranged that its point comes in contact with a cylinder covered with sooty paper, which revolves round a vertical axis; as long as the leg remains at rest, the pencil traces out an even line on the revolving cylinder, but if the nerves connected with the muscles are excited by electricity, the muscles contract, and the pencil traces a curve on the cylinder, first upward and then downward, whose form corresponds to the muscular contraction of the leg, and gives a measure of the energy developed in the leg by the nervous irritation produced by electricity. After continued applications of electricity, the muscle becomes tired and the curves traced on the cylinder show a corresponding modification in size and form.

Acting on the principle here exemplified, Mosso constructed the *Ergograph*, an instrument designed to record the work done by a particular muscle or group of muscles of the human body. The chief point aimed at in the construction of the instrument was to isolate the working muscles completely, so that no other muscle could be in a position to aid them when tired. The apparatus is accordingly arranged so that one part of it holds the arm, hand, and all the fingers fast, except the middle finger, which alone is capable of extension and contraction; that is the flexor muscles alone can be brought into play; the other part of

* La Fatica. *Angelo Mosso.* Milan, Fratelli Treves, 1892. French translation, La Fatigue intellectuelle et physique. Traduit de l'italien, sur la Ve édition par P. Langlois. Paris, Félix Alcan 1896.

the apparatus is similar to Helmholtz's instrument, except that to the writing apparatus, which records the curves on the cylinder, a weight of two, three, or more kilograms is attached.

When using the instrument the person who is to be subjected to the test contracts his middle finger at regular intervals of time, generally every two seconds; the height through which the weight attached to it is thus raised, is recorded on the cylinder, and decreases gradually until at length, in consequence of fatigue, the flexor muscles have no longer the power to raise the weight at all, so that the mark on the cylinder appears simply a straight line. If a grown man uses a weight of three to four kilograms, and repeats the contractions every two seconds, he is usually able to raise the weight forty to eighty times, each lift being, as a rule, slightly less than the previous one.

If now we multiply the sum of the heights of all the lifts by the weight raised, we obtain a measure of the whole work done in kilogram-metres (kgm.).

If the highest points of all the separate contractions as recorded on the cylinder be joined, the result is a line of characteristic form known as the Curve of Fatigue, "Ermüdungskurve."

This curve displays a characteristic and constant form for each individual, supposing him to be in fresh condition and the weight raised and the intervals of time to be the same at each trial, from which it may be inferred that every person has special characteristics as regards capacity for work, and liability to fatigue. This inference is confirmed by the following experiment. The nerves of the muscles employed in lifting the weight attached to the Ergograph were subjected to the action of an electric current, so that all mental influence was eliminated. In this case, the curve obtained from the record of the work done by the excited muscles showed again the characteristic form peculiar to the individual, although deficient in length and height. At the same time, however, variations in the mental and physical state of the individual have of course a direct influence in the form and size of the curve; the curve is in fact, as Mosso tells us, "the resultant of a complexity of causes which influence the muscles, nerve centres, and circulation, and depend on the composition of the blood, and the general condition of the system."

Increase and decrease of bodily vigour, practice, mode of life, duration of sleep, rest, mental excitement, physical as well as mental exertion, all tend to cause modification of the curve; even slight disturbance of the digestive organs, a night of broken sleep, or a heavy dinner produces a material modification. After severe mental labour, for instance, one hour's rest is found to be insufficient for the muscles and nerves actuating them to regain their former vigour, and the normal curve is only produced after a longer period of rest. Practice, of course, strengthens the muscles and enables them to perform more work in course of time, but the results of practice can easily be distinguished and do not affect the characteristic form of the curve.

One interesting and important fact drawn from these experiments is that *the fatigue produced by every known cause is*

far more pronounced in the case of the young than with older persons.

A comparison of the curves obtained from different individuals affords an interesting insight into their respective working powers.

Seldom are the curves alike; the number of lifts varies, as also the height of each single effort.

With some persons the contractions attain the same height for a considerable period and drop suddenly towards the end, with others they drop more quickly at first, while in the case of others again, the height decreases regularly for a considerable period, and suddenly sinks to a minimum after some time.

In fact, the record of the Ergograph bears out the results of ordinary observation, that some persons feel tired and begin to flag almost immediately, while others work at comparatively high pressure for some time and give way suddenly as complete exhaustion ensues; some are capable of longer, others of shorter periods of work.

It may not be out of place here to refer briefly to the views generally recognised at the present day in regard to the nature and origin of fatigue.

Dr. Shelley in the "School World" for September 1899, says,—"The sensation of fatigue, whether this be experienced in connection with muscular or mental labour, is dependent on two things, both the direct result of that labour, viz., (1), a true fatigue of the tissue due to the temporary exhaustion—a using up—of its latent energy, which is to be met by nourishment and rest; (2), a true poisoning of the tissue itself by the accumulation of its own waste."

In all cases of volitional work the wear and tear of the nervous system must be taken into account as well as the waste of organic material.*

Dr. Kraepelin, Professor of Psychiatry in Heidelberg, considers that the apparently intimate action and reaction between mind and body when either is subjected to severe exertion is to be attributed to fatigue of the nervous system. In the course of protracted physical exertion, whilst the work accomplished by

* Dr. Shelley, the consulting medical officer of Haileybury College, in an interesting article on school hygiene in No. 9 of "School World," says:—"All intellectual work is but a form of bodily labour, it implies an expenditure of nervous energy, a destruction of body tissues, and a production of effete poisonous waste material, just as occurs in connection with muscular effort. Moreover, this nervous tissue, on the physical changes of which an output of intellectual work depends, is far more delicate in structure, and much more easily disorganised than is muscle substance; *it is far more immature relatively at any given age in the young individual*, and in relation to the whole race its modern development is from the evolutionist's standpoint, far more recent and, as it were, less consolidated than is that of the muscular system. Hence the obvious need of caution and watchfulness in dealing with a tissue which is, in the young, actually in process of formation as well as of development, a tissue so delicate and so liable to injury, easily stimulated, and speedily exhausted, readily moulded in virtue of its physiological and psychical plasticity, endowed with enormous potentialities, yet, in the young child, developed only a little beyond the embryonic stage."

the muscles decreases, the application of nervous force increases, for the muscles as they become fatigued need a more powerful stimulus to incite them to further exertion.

In the case of brainwork, the nerve fatigue is probably very much greater than is engendered by physical labour. This strain on the nervous system produces a diminution in the sensitiveness of the skin, on which phenomenon is based one method of measuring mental fatigue which is discussed below.

The poisoning of the tissue is brought about by chemical processes in the organic cells. In physical activity more waste material is formed than in a state of rest. The more intense or prolonged the exertion, the more profuse is the production of it. It not only impedes the activity of the cells or muscles in which it is formed, thus rendering them less and less capable of exertion, but enters also into the circulation, and is thereby brought into contact with the nerves and cells of all parts of the body.

At the same time, however, it undergoes a constant process of combustion in the blood and elimination by means of the liver, lungs, skin, &c.

The production of this waste material at a greater rate than that at which its elimination can be effected, causes it to accumulate in the system, and is probably the chief factor in producing the sensation of fatigue; if the amount thus brought into circulation exceeds the physiological limits of health we become ill.

The most potent factor in enabling one to retard the formation of waste material and to rid the system of it is rest.

Now Mosso points out that as the brain-cells are the material basis of all mental processes there take place in the brain when actively employed, organic changes which, as we are led by experiment to infer, yield products similar to those due to muscular exertion, and these products react similarly upon the whole system.

It is a matter of common observation that if any one organ of the body becomes more or less exhausted, this exhaustion does not confine itself for long to the part in which it originated, but affects gradually the neighbouring organs and finally the whole system. For example, after a fatiguing walk, it is no longer possible to do so much work with the hands as usual, or to sit down to severe mental study at once; an adjustment of the working powers of the whole organism takes place, a transference of fatigue from the more to the less fatigued parts. This introactive principle holds good for mental as for physical exhaustion, and all the phenomena incident to mental work and fatigue can be explained on the same principles as those which characterise physical exertion, and are, in all probability, subject to similar laws. So although one often feels mentally stimulated after physical exertion when not too severe, this effect is generally only transitory, and is probably due to other causes which affect the general tone of the system, such as the inhaling of abundance of fresh air, and the consequent speedier elimination of waste material from the system.

Experiments with the Ergograph were also carried out by Maggiora,* who pointed out that longer intervals between each act of lifting produced a more favourable curve and retarded the appearance of symptoms of fatigue. He also demonstrated the fact that to work a fatigued muscle has a much more unfavourable effect on the system than to work a comparatively fresh one. If a muscle has reached an advanced stage of fatigue, heavier calls must be made on the nerve centres and greater volitional impulse given, in order to induce it to go on working. A strain is thus placed on the nervous system, and the final contractions preceding complete exhaustion are infinitely more exhausting than the previous ones. Experiments undertaken on other lines have gone far to prove that the same principle holds in the case of mental work, especially with young children, who should therefore never be pressed to work to the limits of their powers.

Mosso only experimented with the Ergograph on adults, and it was left to another investigator—Dr. Ferdinand Kemsies, an Oberlehrer in one of the Berlin Realschulen—to apply this instrument to the measurement of fatigue in school children.†

Kemsies subjected pupils to it regularly for four months in one of the primary schools and in one of the real schools in Berlin, at all times of the day and often after every lesson.

He also made use of it before and after free days to determine the influence of these on school-work.

The pupils chosen for this purpose represented in their capabilities the average of their classes, and were, as a rule, attentive and hardworking.

The first conclusion which Kemsies draws from his measurements is that *concentrated attention combined with bodily or mental exertion produces loss of muscular power after a comparatively short time.* Every subject of instruction may produce it, according to the energy with which the individual devotes himself to it, his particular bent or bias, and his power of resistance to fatigue at the time. But compensation takes place after a comparatively short time, one or two hours later, if a change takes place in the nature of the work, especially if the change be to work of a lighter character.

The notion that it is not the change of work, *per se*, which exercises an ameliorative influence on the mental powers, but the transition from work of a severe to that of a lighter character, is confirmed by several investigators. Dr. Kraepelin, a keen and critical writer, remarks, in his latest contribution‡ to our knowledge of this subject:—"Rousseau's idea that rest is change of work only holds good in so far as the change is to work of a lighter character, or at least to work which taxes other organs of the body, the strain imposed by which is so slight as to admit of partial recuperation of the organs previously fatigued." *A hygienic sequence of work, in fact, ought to be a cardinal feature of every school curriculum.*

* Ueber die Gesetze der Ermüdung.

† *Kemsies*, Zur Frage der Ueberbürdung unserer Schuljugend.

‡ Zur Ueberbürdungsfrage: Jena, Gustav Fischer, 1897.

In illustration of this principle, the following measurements made by Kemsies on pupils of the fourth class of the above-mentioned Realschule before and after every school-hour are interesting.

(Kgm. = Work done in Kilogrammetres, as measured by the Ergograph.

——	Pupil A.		Pupil B.	
	Kgm.	Gain or loss.	*Kgm.*	Gain or loss.
8 a.m.	1·940	—	1·250	—
Geometry	—	−0·411	—	−0·342
9 a.m.	1·529	—	0·908	—
French	—	+0·135	—	+0·048
10 a.m.	1·764	—	0·956	—
National History	—	+0·118	—	−0·191
11 a.m.	1·882	—	0·765	—
Drawing	—	−0·383	—	+0·051
12 noon	1·499	—	0·816	—
German	—	+0·383	—	+0·178
1 p.m.	1·882	—	0·994	—
Total loss of power in the course of the morning	—	−0·058	—	−0·256

Here, in the case of both pupils, a considerable decrease of muscular power reveals itself after the first hour's Geometry, while the hour at French, which immediately succeeded it, evidently made much slighter demands on the mental powers, as both showed a slight increase of muscular power after it. In neither case was the diminution of muscular power at the end of the day's work sufficient to lead one to infer that the strain of five hours' work broken by short intervals was excessive.

To this feature of the greater or lesser strain imposed on children by the various subjects of instruction, Kemsies devoted a large number of experiments, and the results seem to show that, under ordinary circumstances, each subject has a tolerably constant relative value in producing fatigue, the measurements taken before and after the school-hours showing, in the case of some subjects, a fairly uniform loss of power, in the case of others no loss worth mentioning, and, sometimes, even recuperation.

To enter further into details, gymnastics, as a rule, reduced the measurements of the Ergograph very considerably. Thus, with one boy of the fourth form of the Realschule the readings taken before and after an hour's gymnastics were respectively—

Before ...	0·911	0·941	1·264	2·264
After ...	0·735	0·823	1·000	1·823

With another:

Before ...	1·148	1·224
After ...	0·434	0·867

a very marked reduction.

Again, the readings taken from three boys in the primary school were as follows—

Before ...	0·580	0·714	1·380
After ...	0·490	0·795	0·700

Here, in one case, an increase of muscular power was recorded, pointing to recuperation of the system.

Mathematics appeared to make heavy demands on the system, fully equal to that produced by gymnastics. In the case of two Realschule boys the readings were—

Before ...	2·265	1·940	1·444
After ...	1·617	1·529	1·199

while five boys of the primary school showed the following readings—

Before	1·275	1·046	2·060	·620	1·170
After	1·199	1·021	·954	·320	·920

In the case of the mother tongue, on the other hand, an increase of muscular power in the course of the hour was registered in several instances, owing, perhaps, partly to the greater facility which constant habit produces in working at their own language and partly to the greater variation in the treatment of this subject than is usually possible in mathematics.

The appended records were taken on the same pupils of the Realschule as above—

	Pupil A.	B.	C.
Before ...	1·000	0·867	0·765
After ...	1·088	0·927	0·689
and again,			
	1·499	0·561	0·867
	1·882	0·806	0·740

The following refers to pupils of the Primary School—

	Pupil D.	E.
Before ...	0·610	0·800
After ...	0·610	0·800
and again,		
	0·995	0·953
	1·148	1·295

French proved, according to the Ergograph, severer work than the preceding, but not so exacting as mathematics or gymnastics.

In the case of the same Realschule pupils the results were—

	Pupil A.	B.
Before ...	0·958	1·301
After ...	0·911	1·224
again, on same day,		
	1·411	0·927
	1·264	0·816
again, another day,		
	1·676	1·020
	1·619	0·842

In Religious Instruction the results registered corresponded tolerably closely to those taken before and after instruction in the mother tongue.

Natural Science and History also showed recuperation of power in the majority of cases, thus implying a correspondingly slight strain.

Singing and Drawing appeared to make but little demand on the mental powers, except in the case of advanced pupils, who applied themselves with more than usual energy to the work.

To recur again briefly to the current opinion of the favourable influence of change of work, Kemsies points out that the prevalent idea is based to a large extent on a confusion of two very different things: Subjective fatigue or "Müdigkeit," that is, the feeling of physical or mental exhaustion or tiredness, and objective fatigue, or "Ermüdung," that is, the actual fatigue present, which can be more or less accurately gauged by some approved mode of measurement. That subjective fatigue indicates the presence of objective fatigue and that the feeling of exhaustion and disinclination for work is a sign that the system demands rest, is no doubt true in the main, but such is not always the case. Other factors, such as lack of interest in the work in hand, or its monotonous character often tend to produce marked subjective fatigue, even though the objective fatigue is very slight; on the other hand, keen interest in a subject, or pleasureable excitement produced by congenial work or even a mere effort of will, may effectually subdue all symptoms of subjective fatigue for a considerable period of time.

In this respect the Ergograph has proved, as Kemsies observes, "a sure indicator of the actual or objective fatigue," and he adds, "Schoolboys, like adults, are often deceived by their feelings. According to my experiments the subjective fatigue was often in complete contrast to the objective, a phenomenon which may be attributed to the fact that the seat of the feelings is the nerve-centres, and when the nerves are from any cause excited, the sense of fatigue may be partially, if not wholly, repressed for the time being."

As an instance of this the following measurements, taken from a pupil of the Realschule, may be compared with the experimentor's notes on the personal feelings of the boy or his subjective fatigue at the time of measurement.

Date and Time of Measurement.	Objective Fatigue according to Ergograph.	Subjective Fatigue.
Thursday, 2 p.m.: school over	1·02 kgm.	Somewhat tired.
" 6 p.m.: home work finished.	1·224 "	Rather tired.
Friday, 3 p.m.	0·867 "	" "
" 6 p.m.: school ended	0·740 "	" "
Saturday, 8 a.m.	1·173 "	Heavy feeling in the head.
" 2 p.m.	0·867 "	Tolerably fresh (?).
" 6 p.m.	0·842 "	" "
Monday, 6 p.m.	1·275 "	" "
Tuesday, 8 a.m.	2·130 (max.)	Fresh.

Here, as in similar measurements undertaken by Kemsies, considerable discrepancy appears between the subjective and the objective fatigue. On Saturday afternoon, for example, the low

record of the Ergograph in no way accorded with the feelings of the boy. The prospect of the coming day's rest doubtless produced a cheerful frame of mind and caused partial obliviousness of his actual state of fatigue at the time. It is not till Tuesday morning, apparently, that the full effect of the Sunday's rest leaves its mark in a maximum measure for the week.

What, however, appears to call for very serious attention is the *general low muscular accomplishments* of this and many other pupils, as compared with their maximum achievement, a fact which would seem to indicate that the ordinary routine of school-work was incompatible with a sound and vigorous state of health.

In the case, for instance, of the pupil whose measurements are quoted above, the maximum, made on a Tuesday morning, was 2·130 kgm., but the average measurement during the four previous days, excluding Sunday, was about 0·960 kgm.; considerably less than half the maximum.

The case of another pupil of the Third Form of the Realschule in question is peculiarly interesting, as measurements were taken during a fortnight's holiday as well as on several days before and after the same. The boy is noted by Dr. Kemsies as tolerably strong and intelligent, yet the average of measurements taken previous to the holidays was 1·500 kgm., with a minimum accomplishment of 1·285 at nine o'clock on a Saturday morning. During the holidays, on the other hand, the average measurement was 2·350 kgm., with a maximum of 3·285, attained on the day before commencing work again.

In the course of the next ten days, however, the measurements relapse to an average of 1·86 kgm., showing clearly a marked diminution of muscular power as the result of school work.

If the measurements recorded by the Ergograph are to be accepted as a criterion of the mental state of an individual, Dr. Kemsies considers the assertion that the school exercises an unfavourable influence on individual pupils to be fully justified. *Tired,* pupils ought no doubt to become in the course of an average working day, for only so is the habit of doing work readily and easily and of advancing from stage to stage acquired, but *overtired* they should not be, because continued exertion may lead to a permanent depression of the capacity for doing work.

How far Dr. Kemsies' figures may be regarded as indicating over-pressure depends, of course, on the actual connection between cause and effect, the relation which exists between mental fatigue and loss of muscular power, and that can, in our present state of knowledge of these phenomena, only be roughly gauged by comparing with one another the results attained by investigators who have adopted different lines of enquiry into this question.

One fact, however, stands out quite clearly from a perusal of the results of these experiments, namely, that a *boy or girl must possess a certain minimum of physical and nervous force, a definite standard of power of resistance to mental fatigue in order to cope with school-work under its present conditions*

without the risk of temporary, and possibly permanent, injury to health.

The Ergograph shows clearly that the mental strain produced by ordinary school-work on many pupils causes, after a short time, a marked diminution of muscular power, implying a generally enfeebled state of mind and body, liable to lead to permanent injury and loss of health.

Such cases of permanent exhaustion in over-fatigue are easily distinguished from the natural healthy fatigue of the day, which is, or ought to be, completely compensated by the night's rest.

Whether, in the case of such children, or of others who are physically weak, or predisposed to nervous troubles, special arrangements should be made for relaxing the school discipline, or a special class in school formed for their benefit, conducted on easier lines, as has been advocated in one or two quarters, is a matter which would require much consideration, and involve questions of method and management beyond the scope of this paper.

It may, however, be noted that this plan has actually been adopted in a primary school at Zwickau, but whether it has justified its existence is open to doubt.* On the other hand, school work appears to produce little or no loss of muscular power in pupils of average health and strength. Continued experiments have shown that the best working days are the first and second after days of rest or holidays. The effect of Sunday's rest often left its mark as late as the following Tuesday afternoon.

Another important deduction from Dr. Kemsies' investigations is to be found in the relative fatiguing power of the variou subjects of instruction.

Gymnastics and mathematics apparently made the greatest strain on children. Foreign languages and religious instruction considerably less, while the mother-tongue, natural science, geography, and history generally afforded opportunity for recuperation, and singing and drawing, more technical subjects, made as a rule a very slight call on the system. These results have been fully confirmed by the result of enquiries made on other lines. To turn these results to practical account, Dr. Kemsies insists, as several other investigators have done, on the importance of so arranging the curriculum of the school that the subjects which make the greatest demand on the mental power should alternate with those of a lighter character.

By this means not only is greater variety introduced into the scheme of work and the interest of the children thereby more easily maintained, but opportunity is afforded for recuperation during the hours of lighter employment from the fatigue produced by severer studies.

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* Cf. *R. Seyfert*, Die Organisation der Volkschule auf psychologischer Grundlage; Zwickau, 1891; and *Brahn*, Die Trennung der Schuler nach ihren Leistungsfahigkeiten.

Measurements with the Ergograph were also made by Dr. Keller,* who let boys of 13 to 17 years of age read printed matter quickly for 15 to 20 minutes at a time, and tested their muscular power before and after. The results agreed in the main with those deduced by Kemsies; at the conclusion of one hour's employment at this work a marked diminution of muscular power was noted, and one hour's rest was found to be insufficient to insure complete recuperation.

Further experiments made between every school-hour, morning and afternoon, led Keller to infer that the ordinary school instruction exercised an injurious effect on the nervous system of many of the children, which might in many cases prove disastrous to their general health. A full discussion of Keller's experiments is, however, impracticable, as, beyond a *resumé* in an educational paper, no full account of them seems to be procurable.

Part II.—Mental Tests.

The second method which investigators have adopted, and to which more attention has been hitherto devoted than to the other two, consists in setting a certain amount of work of a homogeneous character to be done by children under certain conditions in regard to time. The results are carefully analysed, and from the quality and quantity of the work conclusions are drawn as to the mental capacity and fatigue of the class or individual.

This kind of experiment has, of course, the apparent advantage that the brain is subjected to a direct test, and the employment of muscular exertion as a medium for ascertaining the state of the brain is avoided.

On the other hand, the system presents many more practical difficulties than the one previously discussed.

In exercising a group of muscles until complete exhaustion ensues, a certain definite amount of work is done, and no effort on the part of the individual can force the muscles to do more. The relative capacity for work of the group of muscles at different times is definitely determined, and the uncertainty only comes in when endeavouring to fix some standard of connection between mental fatigue and loss or gain of muscular power, or in eliminating the influence on the muscles of physical work in order to trace the effect of mental work alone.

In endeavouring, however, to apply a direct test to the brain, many factors which conduce to uncertainty in the results have to be reckoned with.

The most prominent of these is, without doubt, the acquisition of facility by practice. Practice increases the mental capacity for work, and enables the individual to do more at each effort up to a certain limit.

Its influence can be traced days, weeks, and even months afterwards; fatigue, on the other hand, if not excessive, disappears comparatively rapidly. Practice is the most powerful opponent

* Keller, Experimentelle Untersuchungen über die Ermüdung von Schülern durch geistige Arbeit. Zeitschrift für Schulgesundheitspflege, 1897, pp. 335-339, and 404-406.

of fatigue because it reduces the liability to fatigue. It is the oil which makes the machine run smoothly.

In many of the experiments of this class the influence of practice, as evidenced by a rapidly increasing quantity of work completed in equal times, is most clearly marked, but deductions as to the influence of fatigue are by no means so obvious.

Again, the question as to what sort of mistakes are to be taken as due to mental fatigue, and what sort as due to ignorance or mere want of attention, has been a prolific source of discussion. And here again the question arises ?—How far is one justified in attributing mistakes due to want of attention to the influence of mental fatigue ?

The greater or lesser degree of energy, too, with which the children under experiment have applied themselves to the tests put before them must always remain a somewhat indeterminate quantity.

It may here be premised that this method of measuring mental fatigue falls under two heads. Either the investigator has set to the class a number of simple operations of a similar character, the accomplishment of which is calculated to occupy about an ordinary school-hour, and has endeavoured to draw from the results of this conclusions as to the effect of school-work generally on children of the same age, or he has subjected them to tests of five or ten minutes' duration at definite intervals during school-hours, and, from the quality of the results, obtained a gauge of the effect of the actual school-work on the mental powers of the children.

The most usual tests employed have been the addition of rows of numbers, multiplication by a single digit, writing sentences of similar character from dictation, reading or learning by heart figures and columns of syllables.

Under the former of these two heads the experiments of Burgerstein, Höpfner, Kraepelin and others fall, while those of Laser, Kemsies, Friedrich, or Ebbinghaus may be taken as typical of the latter.

The first observations of this nature were undertaken by the Russian pedagogue Sikorski.*

Sikorski dictated a number of short sentences to a class of children at the beginning and end of the school-day and compared the number of mistakes made. The result showed a falling off of about 33 per cent. in the correctness of the work.

It has however been objected by later investigators that no mention was made of the length of the dictation, and, it is not stated whether the various sentences dictated were of a homogeneous character, a very important matter, for in order to draw reliable conclusions, the sentences dictated ought to correspond very closely in length, style and difficulty.

In drawing his conclusions Sikorski distinguished errors of inadvertence or slips from actual faults arising from ignorance or

* Sur les effets de la lassitude provoqueé par les travaux intellectuels chez les enfants de l'âge scolaire. 1879. Annales d'hygiène publique. Paris, III. Sér, tome 2.

want of attention; he attributes the former class alone to the effects of fatigue and makes use of them alone in drawing up his table of results. "These are," he says, "fautes involontaires ou inévitables," and as such, "en rapport avec l'exactitude du travail du mécanisme nervopsychique pour un temps donné." On the other hand "Les fautes proprement dites sont exclues du calcul, attendu que leur nombre peut varier indépendamment de la lassitude du mécanisme nervopsychique par suite du plus ou moins de savoir des principes de l'écriture et du plus ou moins d'attention apportée par l'élève, ce qui échappe complètement à toute mesure."

The principle of distinguishing various classes of mistakes in drawing conclusions as to mental fatigue is a much vexed one it has been adopted by other investigators in this method of enquiry but it is more than doubtful if Sikorski's plan of excluding from his calculations all mistakes presumably due to want of attention was a wise one. It is a well ascertained fact that fatigue of the nervous or mental forces manifests itself notably in want of attention and liability to distraction.

Sikorski has given no details of the percentage of mistakes attributable to this cause. Despite these objections, however, his investigations are of interest as being the first attempt to open up a new line of enquiry into mental fatigue.

In Germany attention was probably first drawn to this method by Dr. Emil Kraepelin, Professor of Psychiatry in Heidelberg, who made some experiments of a like nature on adults, the results of which he briefly alluded to in a volume comprising a number of interesting experiments on psychical phenomena.*

These consisted in setting columns of single cyphers to be added without pause for four periods of half-an-hour, with intervals of ten minutes between each half-hour.

When the sum reached 100, the hundred was simply disregarded and the addition of the cyphers continued.

Every five minutes a bell sounded, whereupon the reckoners made a stroke under the last cypher added. By this means the quantity of work done every five minutes was definitely checked. No attention, however, was paid to the correctness of the work.

Kraepelin's experiments were chiefly of interest in showing the important part which practice plays in mental operations.

'The course of all mental work," Kraepelin observes "is to a large extent modified by practice." His experiments showed that the rate of working increased from period to period up to a certain point, and this point varied very considerably in different individuals. But in every case the limit is sooner or later attained beyond which further increase in the rate of working is no longer possible. From this point the increase in speed is overweighted by the ever growing influence of fatigue, and a gradual

* Ueber die Beeinflüssung einfacher psychischer Vorgänge durch einige Arzneimittel. Fischer, Jena.

decrease makes itself perceptible which continues without intermission until complete exhaustion ensues.*

The intervals between the half-hours of work, however, always exerted a favourable influence in so far that the rate of working immediately after any interval was always higher than during the period immediately preceding it, a fact which Kraepelin considers a *strong argument in favour of longer intervals between school-hours*, for while the effects of fatigue are in a large measure dissipated by such intervals, the influence of practice is in no way diminished.

In later publications† Kraepelin has discussed critically the various methods employed by himself and other investigators from the standpoint of the psycho-physiologist and drawn attention to various important points which will be touched upon in the course of this report.

The first to attempt to carry out experiments on school-children in Germany in a scientific manner was Dr. Leo Burgerstein,‡ Professor at one of the Realschulen in Berlin.

While the interest aroused in the question of over-pressure in German schools led to an inquiry into features of school management, the ordinary duration of the school-hour also came under discussion, and much doubt was expressed as to the suitableness of this period of work for younger children. In view of this, Burgerstein undertook experiments with the aim of ascertaining the extent of the fatigue developed in a school-hour amongst younger school-children.

For this purpose Burgerstein made use of an arithmetical test.

Four sets of simple addition and multiplication sums were made up, each set containing ten addition and ten multiplication sums alternating with each other.

The following may be taken as a sample of two such sums—

Add	2 8 7 0 3 4 5 1 6 9 2 7 4 0 8 3 1 5 6 9
	3 5 8 6 9 4 2 7 1 0 8 2 1 5 9 7 6 0 4 3
Multiply	2 8 7 0 3 4 5 1 6 9 2 7 4 0 8 3 1 5 6 9 by 2.

Each set of twenty similar sums was calculated to occupy ten minutes, and at the expiration of each ten minutes five minutes more was spent in collecting the papers and setting the next set, so that the completion of the whole four sets occupied exactly fifty-five minutes, the ordinary length of a school-hour.

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* These conclusions of Kraepelin coincide closely with Mosso's observations:—"Jede Person ermüdet in ihrer besonderen Weise. Jeder Mensch besitzt im allgemeinen einen ihm eigentümlichen Gang der Leistungsfähigkeit, der sich während einer bestimmten Arbeitszeit regelmässig in der gleichen Weise zu gestalten pflegt. Einige Personen zeigen erst nach längerer Zeit eine Abnahme der Leistungsfähigkeit: bei andern ist fast vom Beginn der Arbeit ein Sinken der Leistung zu erkennen. Zwischen beiden Formen beobachten wir alle Formen der Uebergänge; aber jede einzelne Person pflegt im allgemeinen stets das gleiche Verhalten zu zeigen."

† Ueber geistige Arbeit, 1897, 2nd Ed.; Zur Hygiene der Arbeit, 1896; Zur Ueberbürdungsfrage, 1897. Fischer, Jena.

‡ Die Arbeitscurve einer Schulstunde. Dr. Leo Burgerstein. Leipzig: Voss, 1891.

As each sum differed from the others only in the arbitrary arrangement of the figures, there was no variation in the quality or quantity of work in each set of sums.

One hundred and sixty-two children, boys and girls, from one of the primary schools in Berlin, of the average age of eleven and a half and two classes of boys from one of the Realschulen, of ages varying from twelve to thirteen, took part in the experiment.

The work required was, of course, well within the scope of all the children, so that no mistakes could be ascribed to ignorance.

On the other hand, one considerable source of difficulty presented itself in reckoning the mistakes, because one mental error often affected several figures, and where several wrong cyphers occurred in a row it was often difficult to decide whether these were to be attributed to one or to several mental errors.

Burgerstein decided on counting each wrong cypher as one mistake as most likely to contribute to exactness in the results. He also counted the number of the corrections in cases where the right cypher had been written in place of a wrong one

The results of the work done by all the classes which took part may be briefly summed up as follows:—

Set of Sums.	Number of			Percentage of Children who made *no* Mistakes.
	Figures Reckoned.	Mistakes.	Corrections.	
1	28,267	851	370	12·9
2	32,477	1,292	577	4·3
3	35,443	2,011	743	2·7
4	39,450	2,360	968	2·4

In this table there is a remarkable increase in the rate of working, nearly 40 per cent., between the first and last sets. Whether this is altogether to be attributed to the beneficial influence of practice or to some other psychological cause is not quite clear. It may be that the consciousness of not having completed the full number of sums in the first set stimulated the children to greater exertions in the succeeding ones. A more significant fact, however, is the large increase in the number of mistakes and corrections, which is far greater in proportion than the improvement in the rate of working.

The increase per cent. comes out thus:—

—	In Figures reckoned.	In Mistakes.	In Corrections
From 1st to 2nd set	14·8	51·5	58·2
„ 1st to 3rd „	25·3	136·3	162·8
„ 1st to 4th „	39·5	177·3	194·0

From this table it appears that while the improvement in the rate of working was least from the second to the third set, the increase in the number of mistakes and corrections was considerably the greatest at this period.

This result seems to point to the fact that, in the course of the third period the capacity for work had diminished considerably in consequence of growing fatigue, in fact, as Burgerstein says: "Dass innerhalb der dritten Viertelstunde auf dieser Entwickelungsstufe die Fähigkeit, sich ernstlich mit jenem Gegenstand zu beschäftigen, der das organische Materiel bereits vorher beanspruchte, beträchtlich gesunken ist."

Now Burgerstein made a careful analysis of the work of individual pupils, and found that, although in general there was an increase in the rate of working throughout, yet as many as 43 per cent. of those examined showed a decrease in this respect before the end of the hour.

These Burgerstein characterises as the easily-tired children who reach the climax of their working capacity at a comparatively early stage and then gradually succumb to the increasing influence of fatigue.

Such cases were most common amongst the girls' classes of the primary school.

The fact that a relatively large number of children showed signs of diminished capacity for work even before the end of three-quarters of an hour, and in spite of the intervals between the periods of work, is, in Burgerstein's opinion, strong testimony in favour of a reduction of the ordinary working hour in the case of children under twelve or thirteen years of age.

Now, if we accept the results of Burgerstein's enquiries as illustrative of what occurs every day in the ordinary course of school work, we have, as Kraepelin * points out, a truly deplorable picture of the effect of school instruction on young children; we should have, in fact, to believe that after the first three-quarters of an hour, a large and rapidly-increasing number of children were rapidly sinking into a state of mental incapacity (Ermüdungsnarkose) and becoming more and more unfit to apply themselves to the work before them.

It has, however, been pointed out that the conditions under which experiments such as Burgerstein's are carried out, can scarcely be accepted as typical of actual school work in the lower classes. The work done in these experiments makes a continuous and severe strain on the powers of attention, a strain which perhaps would not produce any great fatigue in older pupils, but which is a severe tax on the energies of children of eleven to twelve years, and is seldom or never required of them in the course of an ordinary school-hour.

The children were, in fact, working against time, and doubtless in many cases straining every nerve to accomplish as much as possible. It would scarcely be maintained that this is at all usual in ordinary class work.

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* Ueber geistige Arbeit.

Every teacher will endorse the fact that it needs a very rigid discipline to enforce the full attention of a class on a difficult subject for a whole hour at a time; indeed, it is probable, that if every child were made to give his complete attention for only 40 minutes out of the hour, the strain imposed would very soon result in a general breakdown of the system of work.

Burgerstein himself says: "Man Kann Sitzen und Stillesein bei Kindern erzwingen, man täusche sich aber nicht, sie werden doch in vielen Fällen geistig ausruhen bezw. wenn sie ermüdet sind."

However severe the discipline of the class-room, children will inevitably find opportunities of distraction or simple inattention —nature's safety valve as Kraepelin calls it—which help to relieve the pressure of work.

Theoretically, no doubt, attention and interest on the part of the pupil are expected for the whole hour, but in practice, the degree of attention required varies from moment to moment, as also the object to which the mind of the child is directed; in many cases indeed, it must happen that strict attention is only demanded of the children for a few minutes in the course of the hour, when they are directly questioned by the teacher; at the same time, too, the varied character of the work in a well-conducted class, permits of change in the attitude of the body. Standing up, sitting down, coming up to the blackboard or map, listening, and answering questions singly or together, all these tend to add life and interest to the work in hand.

No reasonable teacher will keep his class employed at the same kind of work for the whole hour, indeed, no subject demands such monotonous handling, while most offer rich opportunities for variation, both in respect to the material itself and to the method of treating it.*

Another point which deserves notice is the monotonous character of the work.

To add up and multiply with small numbers may not in itself be very fatiguing, but the constant repetition of exactly similar operations offering absolutely no variety and calling into play exactly the same mental powers, probably tends to produce fatigue very much sooner than work of a less fatiguing character. One may compare with it the effect on the retina of the eye of

* So Uhlig in his criticism of the methods employed by Kraepelin says:

"Der Unterricht in den höheren, wie niederen Schulen verläuft meist in abwechslungsvoller Weise selbst innerhalb derselben Lehrstunde, ... wie die Objekte der Aufmerksamkeit, so sind mannigfaltig auch ihre Arten und Grade, und in dem Wechsel zwischen diesen liegt der Grund warum am Ende einer vierten Stunde (in mittleren und oberen Klassen auch einer fünften), wenn zugleich angemessene Pausen eintreten, von Ermüdungsnarkose, wenigstens bei nicht abnormen Schülern, nicht gespürt wird."

And Mosso says:

"Die tauglichsten Lehrer sind die, welche niemals übermässig eine Gehirnregion ihrer Schüler ermüden, und dabei verstehen, ihre Aufmerksamkeit einmal hier und einmal dorthin zu lenken, damit dieselbe ruhen und dann gekräftigt auf den eigentlichen Gegenstand zurückkommen kann."

staring rigidly at a fixed point for a minute or two. The only wonder seems to be that signs of exhaustion did not manifest themselves at an earlier stage of the experiment. Had simple problems of an attractive and varied nature been placed before the children, or other measures been taken to sustain their interest and induce them to take a pleasure in the work before them, the results would no doubt have been very different.

Again, it is doubtful if the large increase in mistakes and corrections in the course of the hour is to be put altogether to the score of fatigue.

The very fact that a constant increase in the rate of working took place from period to period would lead us to suppose that in their eagerness to complete the quota of sums set, the children paid less attention to the correctness than to the speed at which they worked.

To practice, in fact, and the consequent increase of speed in working, the deterioration in the quality of the work was in part to be attributed.

In view of these considerations, then, Burgerstein's enquiries, although instructive in themselves, are scarcely to be accepted as final without wide confirmation from the investigations of others who have gone to work on different lines.

They are in any case useful in serving to draw our attention to the severe strain on the system that uninterrupted brain-work at high tension produces in children, even if continued for a comparatively short time, and the absolute need of change and variety in school-work.

A noteworthy addition to our knowledge of these psychological processes in connection with prolonged mental work is to be found in the analyses made by Dr. Höpfner* on the results of a piece of dictation set to a class of 50 boys of the average age of nine years in one of the Berlin Volksschulen. The piece of dictation was drawn up by the rector of the school and consisted of 19 sentences, each of which contained on the average 30 letters. It was set as a test for promotion into a higher class, and occupied more than two hours, an unusual length of time, which, however, Höpfner attributes to the fact that the class contained two pupils whose hearing was defective. Under ordinary circumstances an hour and a half would have been sufficient. One result of the slow rate of dictation, however, was that most of the pupils had short intervals of rest between each sentence. The correction of this work fell to Höpfner, who was struck by the remarkable increase of mistakes in the last half of the dictation and determined to subject the whole to a searching analysis.

We have seen that Burgerstein in his arithmetical tests arranged the sums to be done so that the difficulties to be encountered in each were exactly similar. To adopt a similar method in dictation is scarcely possible. Höpfner therefore hit upon the plan of selecting a certain class of mistakes which might occur and

* *Höpfner*, Ueber die geistige Ermüdung von Schulkindern. Zeitschrift fur Psychologie und Physiologie der Sinnesorgane. 1894. Vol. vi.

obtaining a measure of the *quality* of the work done by dividing the number of actual by the number of possible mistakes, or, what is equivalent to this, finding the percentage of actual mistakes in terms of the possible.

Höpfner observed that, on the average, two to seven mistakes were made for every 100 letters, but the percentage of mistakes varied, decreasing somewhat during the first half-hour, and then increasing rapidly from thence onwards. Thus the percentage of mistakes in the first two sentences was 0·93, in the next two 0·72, thence increasing pretty constantly to 2·7 in the ninth and tenth, and 6·4 in the 19th. In general the mistakes increased one per cent. for every four sentences, and were therefore proportional to the work accomplished, so that the "curve" of the mistakes is in its main features a straight line.

Höpfner attributes the initial decrease of mistakes to the mental excitement at first produced and the general rousing of the mental faculties; as soon as the first effect of this excitement passed off, the influence of fatigue began to be apparent and with the second half-hour a sudden rise in the quantity of mistakes occurred. Now it might be objected that the cause of this variation in the number of mistakes was attributable to the increasing difficulty of the sentences in the course of the dictation. To meet this, however, Höpfner turned his attention to one particular class of mistakes, of which an exact number were possible in the course of the whole piece, and compared the actual mistakes made with the whole number possible to make. And for this purpose he selected the class of mistakes which consists in writing capitals for small letters and *vice versâ*.

Grouping the sentences together, four at a time, the following was the number of possible mistakes:—

690, 782, 598, 598, 552;

and the actual mistakes in each set of sentences made were as follows:—

8, 27, 41, 59, 79.

Whence the percentage of actual to possible mistakes was:—

1·2, 3·5, 6·9, 9·9, 14;

or in round numbers

1, 4, 7, 10, 14.

Here the same fact transpires, that the percentage of mistakes increased in an almost constant ratio, thus bearing out the conclusion arrived at by the foregoing calculation.

The importance of Höpfner's work, however, lies chiefly in his discussion of the psychological and physiological processes which are entailed between the hearing a piece of dictation and the transferring it to writing, and in an analysis of the different kinds of mistakes. He points out that there are three main processes involved—

1. The apperception or assimilation of the sentence.
2. The retention in the memory of the sentence so assimilated till its production in writing.
3. The act of writing it down.

Of these, the first in its beginning at any rate, as well as the last in its final accomplishment, partakes more of a physical than of a psychical character, but between these two physical processes, between the apperception and the reproduction of the corresponding memory picture, various psychical observations take place, outwardly imperceptible, to any one of which, however, mistakes in the final reproduction may be attributed; and again, any word may be reproduced in two ways as a "sound impression," as the child believes that it has heard the word spoken by the teacher, or as a "motorial impression," as it repeats and possibly spells the word to itself; further, the reproduction in writing may take place in two ways, either by direct co-ordination of the sound and motorial impressions of the syllables or by means of mind impressions of the word as seen on paper.

In spite of the complex character of these processes, Höpfner found, in the statistics which he formed from the material at his command, sufficient ground for attributing the mistakes with some degree of probability to one or other of these processes.

In analysing the character of the mistakes, in order to ascertain which of them were to be attributed to the influence of fatigue, he found it convenient to group them into four divisions—

(1) Omission of one element of speech, whether letter, syllable, word, or sentence.
(2) Transposition of any element.
(3) Interpolation of a foreign element.
(4) Substitution of one element for another.

From a psychological point of view this classification has several advantages.

It admits of an unequivocal definition of the mistakes; it depends on external characteristics, which render it possible to allocate every mistake without hesitation to its particular class, and it comprises almost every kind of mistake that can occur.

In the next table the mistakes and percentages of mistakes, per 100 letters, are given for every four sentences.

Sentences.	Total Number of Letters Written.	Mistakes						
		of Omission.		Insertion.		Substitution.		Transposition.
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.
1—	4,754	2	·042	1	·021	12	·252	-
5—8	6,072	7	·091	1	·017	16	·272	1
9—12	4,968	14	·281	6	·120	27	·540	-
13—16	5,750	15	·255	8	·136	21	·367	1
17—19	5,128	31	·609	11	·209	16	·340	1

The mistakes of omission Höpfner considers as of special importance in regard to the psychology of fatigue, as the dropping of a word or letter implies the failure of a psychical operation.

It is worthy of note that of the 69 mistakes classed under this head, only 13 occurred in the first ten sentences, the remaining 56 occurring in the last nine.

In connection with this, a slight digression may not perhaps be here out of place.

Höpfner noticed that of 26 letters left out in the middle of words, 23 were consonants, and of these the letter *t* was dropped 10 times.

This he attributes to imperfect pronunciation in the colloquial language of the children, and the fact that children, especially when they become fatigued, tend to relapse from the pronunciation and spelling learnt at school to the more easy and slipshod style they have been accustomed to from earliest childhood.

For example, the word "enfernt" occurs for "entfernt," a mistake clearly due to the influence of imperfect pronunciation.

In regard to this, Strümpell* says, "If the *school* finds itself encumbered by the habits and customs of speech which the children bring with them, particularly in the Volksschulen, and is consequently unable to exert as much influence as the *every-day talk* and colloquial *language* which the child naturally resorts to outside the class-room, the elimination of grammatical mistakes in the *written* language is still more difficult."

And we may take it that the image which the child forms in its mind of any particular word, is not that of the word as spoken by the teacher, but that of the word as known to himself in his own everyday talk.

The pupil of the Volksschule has in fact two languages. The one the language of his surroundings, which he has learnt from his earliest days, and which as a rule he continues to speak, and the other the language of his teachers; and it is noticeable that a large majority of the mistakes made in writing are attributable to defects in that colloquial language to which he is accustomed. So when the pupil becomes tired, the word-impression as acquired from his teacher, is no longer painted as clearly on his mind as heretofore, and the natural tendency is for the sound-impression (Klangbild) to supply its place, and these latter will naturally, in a state of fatigue, be drawn from the colloquial language which he most readily has recourse to.

A good instance of this occurred in the word "nicht" which occurred in the 8th, 15th, and 17th sentences; in the 8th it was written correctly by all the pupils, in the 15th *nich* was written instead once, in the 17th *nich* was written three times.

Now "nich" in the dialect of the district in question is the colloquial pronunciation of "nicht;" an instance of the fact which is explained by Max Müller as the natural tendency to reduce the expenditure of muscular exertion and of breath in speaking to a minimum.

The mistakes reckoned under the head of insertion also may be regarded as due to a defective psychological process; the additions made by the child denote probably a gradual failure as fatigue gains the upper hand, to reproduce correctly the words as dictated or to assimilate them just as they have been

* Pädagogische Pathologie.

spoken, or as Höpfner puts it, 'Bei dem Assimilationsprocesse des Hörens gewann die assimilierende Vorstellungsmasse ('apperception' of Herbart) immer mehr Uebergewicht über die percipierte."

The substitution of wrong words or phrases Höpfner considers also to be due to a failure of apperception or of the memory, while that of letters frequently reflects the bad pronunciation to which the child is prone.

In general then the analysis showed that not only the total number of mistakes, but also the separate groups of mistakes, when classified in such a way that the question of ignorance was eliminated, increased with tolerable regularity in the course of the dictation.

In grouping these, Höpfner was led to refer certain kinds to definite mental processes and showed that as the work proceeded the mind refused to perform its functions as completely and lucidly as at first, that in fact the influence of the schooling of the mind relaxed its hold gradually and gave way before the deeper influences of outside or home life, a result which might reasonably be attributed to increasing mental fatigue. He also showed that fatigue did not manifest itself until after the expiration of the first half-hour, but increased from that point rapidly and steadily to the end.

In 1894 some experiments were set on foot in the Jena gymnasium by its director, Dr. Richter,* with the object of gaining some insight into the effect of the ordinary work of a school-day on the mental capacity of the children.

These experiments form in principle a connecting link between those of Burgerstein, Höpfner, and Kraepelin, who drew their conclusions from the results of special tests which occupied some considerable portion of time, generally a school-hour, and those initiated by Laser and further developed by Friedrich and Ebbinghaus which investigated the working capacity at various periods of the school-day by means of short and generally severe tasks interpolated in the actual course of school-work.

Richter first subjected two gymnasial classes to an examination during the first school-hour on one day and during the last school-hour on another, and compared the results.

It is perhaps to be regretted, as Kraepelin observes, that the two examinations were not carried out on the same day, so as to obtain a more definite measure of the degree of fatigue engendered in the course of one school-day, on the other hand the ordinary school-work of any one day suffered less alteration by conducting the two examinations on separate days.

The classes selected were Ober- and Unter-Tertia, III(A) and III(B), in which the average age was 13 to 14, and which had the same class-master. III(A) had the reputation of being a somewhat backward and dull set of boys. III(B), on the other hand, were on the whole a bright and intelligent set.

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* Unterricht und geistige Ermüdung von Dr. Gustav Richter. Fries u. Meyer. Lehrproben und Lehrgange. Heft. 45. Oct. 95.

The first tests set consisted of simple algebraical expressions, such as

$$13a - 4b - (5c + 2a) - (6a - 4b) - 2c,$$

which had to be simplified. As regards the quantity of the work done, the results showed an increase of speed throughout both classes, which was maintained almost continuously during both hours of work, the average time taken by the boys in III.(B) for the three sets into which the questions were divided being 14, 11, 9·5 minutes respectively in the first hour of the morning, and 9·7, 9·8, 8·3 in the last hour of the following morning.

As regards quality, the number of mistakes showed a tendency to decrease at first but to increase again after the lapse of two-thirds of the first hour, as well as from the very beginning of the last hour.

They averaged for III.(B):

7·85	5·24	6·58	in the first hour,
3·91	5·43	5·80	in the last hour.

The results from III.(A) showed a steady increase in the rate of working and a steady decrease in the number of mistakes throughout each hour, a fact which seems to point to the production of less mental fatigue in the case of boys of less than average mental capacity than in the case of those of good mental powers, which may perhaps be attributed to the fact that dullards exert themselves less than those of a bright and eager disposition.

It should, however, be added that in the school in which these experiments were carried out an interval of 25 minutes occurred after the first two hours. A break of this somewhat unusual length exercised, no doubt, a beneficial influence on the work of the latter half of the morning.

The improvement, both in speed and in the quality of the work in the last hour of the morning, as compared with the first, is to be attributed, in Richter's opinion, to the influence of practice, while the increase in the number of mistakes made by III.(B) during the last two thirds of the last hour, as compared with the first third, points to the appearance of mental fatigue, though not of such severity as to call for special comment.

Again, Richter set further tests to Class III.(B) during the second and fifth hours of the morning, which consisted in dictating the paradigms of the Greek verbs in $\mu\iota$, which the class had been learning for some time previously, the results of which showed a deterioration of about 25 per cent. in the quality of the work in the last hour.

A more detailed examination of the work done, however, brought to light great individual differences, for whereas some pupils gave evidence of considerable exhaustion in the course of the last hour of the morning, others sent up results which gave no evidence of any fatigue whatever.

Richter also applied the same method to boys of Class V., whose average age was 10 to 11, during the second school-hour.

Here, although the rate of working increased throughout the

hour, there was a very marked falling-off in the quality of it, and certain boys showed signs of considerable fatigue.

In general, Richter's experiments confirmed the conclusion already alluded to, that older pupils have much greater powers of resistance to mental fatigue than younger ones.

Pupils of ten or eleven years of age showed signs of considerable fatigue in the course of the second school-hour, whilst no remarkable deterioration in the quality of the work done was noted in the case of pupils of thirteen to fourteen even in the course of the fourth hour.

Richter's investigations point strongly to the fact, which is emphasised by leading physicians and educationists alike, that for children under twelve years of age, school-hours of fifty to fifty-five minutes in length are unsatisfactory both from a hygienic and pedagogic point of view. His experiments are no doubt open to the same objection as those of Höpfner, Burgerstein, and Kräpelin, though perhaps in a lesser degree, viz., that they are of a somewhat monotonous character and little calculated to stimulate the energies of the children, but rather to deaden their interest.

In discussing the school time-table Richter does not speak altogether favourably of the plan now strongly advocated and largely adopted in Germany of placing all five hours of instruction before the mid-day meal.

He cites the case of the higher schools of the Grand Duchy of Weimar, where out of a total of thirty school-hours, one hour's afternoon work is done four days a week, the remaining twenty-six being allotted to the morning. This plan has proved satisfactory from a pedagogic point of view, but it is doubtful whether on social and economic grounds it would succeed equally in other and larger states.

Richter's experiments did not bring to light the development of any undue fatigue in the course of the school-day, but he lays stress on the necessity of reducing the quantity of home-work to a minimum for younger children, and inveighs strongly against the practice of overburdening them with a quantity of memory work, a point which was referred to in strong terms in the "Preussische Lehrpläne" of 1891.

This, however, is a question bound up with that of examinations and cannot be discussed here.

The next inquiries into mental fatigue were instituted by Herr Laser*, Physician at the Hygienische Universitäts-Institut at Königsberg in Prussia. Laser initiated the second of the two methods previously referred to, namely, that of investigating the influence of the actual course of school work in producing fatigue by short tests applied between the ordinary hours of

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* *Laser*, Ueber geistige Ermüdung beim Schulunterricht. *Zeitschrift für Schulgesundheitspflege*. 1894, pages 2-22.

work. These were carried out in one of the Volksschulen in Königsberg.

Each test occupied ten minutes and consisted, like Burgerstein's, of alternate addition and multiplication sums.

In the curriculum of the school harder subjects alternated with lighter ones throughout, so that no two subjects which entailed severe application on the part of the children occurred in successive hours.

There was an interval of five minutes after the first hour, fifteen after the second, five after the third, and ten or fifteen according to the class after the fourth.

The children examined were in their fourth or fifth school-year and of the average age of eleven to twelve. Unfortunately, the work set for the tests seems to have been either much too long or else not sufficiently understood by the children, for in no case were more than half of the sums set completed, and in many cases only a very small proportion were attempted.

Some general deductions were, however, drawn by Laser from the work sent in. He found that the number of figures reckoned increased each time, the average number being:—

in the 1st	2nd	3rd	4th	5th tests.
154·5	180	191	194·5	203 respectively
or 37	43·5	46	48	49 per cent. of the total number of figures.

a result attributable, as in previous enquiries, to the influence of practice.

The quality of the work was also by no means unsatisfactory. The average number of mistakes for each child was:—

in the 1st	2nd	3rd	4th	5th tests.
5	6·5	7·5	8	7·3 respectively
or 3·3	3·6	4	4·8	3·6 of the figures reckoned.

Curiously enough, a decided improvement in quality took place in the last test, between the fourth and fifth hours of the morning's work.

Laser attributes this to the arrangement of the curriculum and to the favourable influence of the intervals between the hours.

From these observations, Laser draws the general conclusion that a certain amount of fatigue is developed amongst children of this age in the course of a morning's work of five hours, but that there is nothing to show that this is anything considerable or more than might be reasonably expected.

The plan of working children of eleven to twelve years of age for five hours in the morning to the exclusion of afternoon work, would appear according to these results, to exercise no ill effect on them, where, as in this case, the curriculum permits of the inter-

polation of lessons of a lighter character between those of a severer nature, and of intervals of suitable length between each lesson.

Dr. Kemsies'* enquiries, which were conducted in 1895 in the 4th class (third school-year) of a Volksschule in Berlin, differed from those of Laser materially in the fact that the rate of working was fixed, and attention directed only to the *quality* of the work done. The influence of practice was thus to a certain extent eliminated, or, perhaps it would be more correct to say, the necessity of taking into account the connection between the quality and quantity of the work done in deducing conclusions was done away with.

Kemsies pointed out that the application of simple mental tests, such as those employed by Burgerstein and Laser, which depend only on the almost mechanical association and reproduction of familiar notions, ought not to be accepted as a gauge of the state of the mental faculties as a whole; he therefore proposed to obtain a more genuine test of fatigue by setting tasks which made a severer demand on the mental faculties.

Accordingly the tests set were selected from what was considered to be the severest task to which the children were accustomed, namely, mental arithmetic. Each test lasted only twelve minutes in each hour, so that the children may be supposed to have maintained a lively interest in them during the short time involved.

The average age of the class, which consisted of fifty-seven boys, was ten and a half, and the school hours were from 8 to 1 o'clock in the morning, the afternoons being free from work.

The following is a sample of one of the tests set, each sum being of a kind in which the children had already had some practice in the ordinary course of school work.

1. Addition. $417+338$; $234+592$; $345+479$.
2. Subtraction. $563-328$; $725-453$; $843-658$
3. Multiplication. 75×8; 139×5; 247×3.
4. Division. $291\div7$; $385\div8$; $476\div6$.

These were set in the middle of the ordinary school-hours, so as to obviate the influence of any disturbing factor such as temporary excitement or impatience, which might influence the children at the end of an hour's work.

A fixed period of time, generally a minute, was apportioned to each sum, though in some cases this was prolonged to $1\frac{1}{4}$, $1\frac{1}{2}$ or 2 minutes, in order to determine the effect of longer pauses between each effort on the general result. The method employed was the following:—The teacher first read out the sum, which was twice repeated by the children in concert; this occupied ten seconds.

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* Arbeitshygiene der Schule auf Grund von Ermüdungs-messungen: von Dr. Ferdinand Kemsies. Berlin: Reuther und Richard, 1898.

The sum was then worked out by the children in their heads, for which 20 seconds more was allowed, and the result was finally written down by each one.

The results of some of these tests are here given. The figures represent the percentage of the actual in terms of the possible mistakes.

Date.	Time.				
	8.30	9.30	10.30	11.30	12.30
Thursday, 31 Jan., 1895 -	30·3	—	42·0	42·5	—
Saturday, 2 Feb., 1895 -	—	—	—	—	50·2
Monday, 4 Feb., 1895 - -	37·0	—	—	35·6	—
Thursday, 7 Feb., 1895 -	36·0	46·7	—	—	—
Saturday, 9 Feb., 1895 -	—	30·3	27·5	—	32·0
Wednesday, 13 Feb., 1895 -	—	28·2	40·0	—	39·5

The higher figures in the first four days quoted above are due to the fact that one minute only was allowed for each sum, while on the two last days a minute and a half was given.

From these results Kemsies concludes that the general average of mental fatigue is not excessive.

It is curious that the percentage registered on Monday morning at 8.30 seems to point to an initial higher degree of fatigue than on the previous Thursday.

Kemsies is, however, inclined to attribute this to the disinclination for work and tendency to distraction often observed after a day's rest, which, however, soon disappears in the course of the ordinary routine of work.

On the whole the first school-hour in each day affords the most favourable results, the last the most unfavourable, while the first two days in the school week are distinctly influenced by the store of energy developed during Sunday's rest, a fact which Kemsies also noted in his experiments with the Ergograph.

The effect of a fatiguing hour's work made itself noticeable in the higher percentages obtained in the succeeding hour, even when the latter was devoted to work of comparatively light character, when and lastly, a slower rate of working produced almost uniform improvement in the quality of the work. So far Kemsies' investigations agree tolerably closely with those of other investigators without adding anything of importance to our knowledge of the subject, but the interesting part of his work lies in his careful examination of the *individual* accomplishments of the members of the classes tested.

This analysis brings to light some astonishing differences in the working powers of different children, and shows that the results of the classes, as a whole, afford but little clue to the working powers of individuals, A consideration of the following table will confirm this.

The figures quoted are the numbers of mistakes made by each of twenty-two children selected from the lower half of the class referred to in the preceding table.

Child.	Date.			
	Thursday, 31 January, 1895. Time.			Saturday, 2 Feb., 1895. Time.
	8.30	10.30	11.30	12.30
1	7	7	6	7
2	8	8	7	8
3	11	12	12	12
4	1	1	2	3
5	6	6	7	7
6	10	10	9	8
7	12	11	11	9
8	7	4	3	5
9	8	6	4	9
10	7	6	8	5
11	7	5	8	6
12	3	7	6	6
13	3	7	2	6
14	6	7	4	7
15	8	8	2	6
16	6	6	4	10
17	3	5	5	4
18	3	7	7	8
19	4	8	8	6
20	7	12	12	10
21	2	6	8	8
22	3	3	4	9

The characteristic traits of individual children stand out prominently here.

Numbers 1,2,3,6 and 7, for example, appear to develop no fatigue in the course of a morning's work. 4 and 5, too, show but slight deterioration. 9 apparently attains his best working powers in the middle of the morning. On the other hand, 20 and 21 show a rapid falling-off from the first hour onwards, implying "a steady increase of mental fatigue induced by the previous instruction." Again, when the above table is compared with others compiled on the same method, it appears that as a rule the same pupils exhibit the same characteristics in regard to capacity for work and susceptibility to fatigue on every occasion. For instance, 8 showed an almost constant tendency to attain his maximum capacity for work in the middle of the morning.

Such a curve characterizes a considerable number of children and may in Kraepelin's opinion be attributed to the nervous stimulus—"Arbeitsanregung," which work produces at first, and which incites the mental powers at first to strong efforts and suppresses symptoms of fatigue.

Nos. 12, 13, 14, on the other hand, exhibit exactly contrary characteristics. An early maximum has in their case been

followed by a period of depression, which, in turn, has given place to a second increase of mental energy at a later period of the morning.

In general these tests would seem to show that "at ten o'clock, after two hours of school-work, one-third of the children have already attained the maximum of their working powers, one-third are still on the upward grade, while the remainder are passing through a period of depression preceding a rise to a second high level. At eleven o'clock no less than half have already passed their maximum, only one-fifth have not yet reached it, and the remainder are approaching the second maximum."

"At twelve o'clock, two-thirds of the children have passed their maximum, only the remaining third being still in a position to attain a higher level of work." Here then, if work is to be continued for a fifth hour in the morning, an interval of considerable length is, Kemsies thinks, of great importance, but he considers that for boys of the age of the class under consideration, the results seem to point to the inadvisability of prolonging the school-day beyond four hours.

Kemsies then goes on to draw attention to the influence of practice on the quality of the work done. Here again he brings to light marked differences in the mental qualities of the various children.

It appears, for instance, from a comparison of the mistakes made in the same hour of the morning in the course of successive days, that while some children, like No. 3 in the foregoing table, experience no improvement under constant practice, others, like No. 8, improve very rapidly. The general average of mistakes, however, showed but slight reduction in the course of fifteen days, although the children had constant practice at this kind of work during that time. In fact children who are soon fatigued seem to possess but a slight capacity for improvement through practice, while those naturally endowed with greater power of resistance to fatigue as a rule show much greater improvement after practice.

Kemsies' experiments then, both with the Ergograph and by the method described above, served to give prominence to the marked difference in the behaviour of different pupils of the same class under the influence of school-work. He maintains that the question of over-pressure in schools must be based on a study of the individual rather than on that of the class as a whole, as in every class there are certain types for whom special treatment is necessary under the existing system of instruction.

In 1897 Dr. Johann Friedrich* published an account of some very thorough and carefully-planned enquiries which he had conducted in a class of one of the primary schools in Würzburg.

Like Kemsies, Friedrich confined himself to ascertaining only the quality of the work done, sufficient time being allowed for each boy to complete each item of the tests set.

* Untersuchungen über die Einflüsse der Arbeitsdauer und der Arbeitspausen auf die geistige Leistungsfähigkeit der Schulkinder.

Instead, however, of making use of tests which involved a more or less severe strain on the intellect, he had recourse to simple dictation and arithmetic as employed by Höpfner and others.

Friedrich mentions that he kept three objects in view in his investigations; to enquire into

1st. The relation existing between the mental capacity at any time and the previous length of time devoted to mental work.

2nd The influence of the length of the school-hours at present in vogue on the mental capacity of school-children.

3rd. The effect of intervals between the hours of work.

It is the carrying-out of this last object which lends special interest to Friedrich's publication, and the thorough investigations which he made with this end in view have resulted in a valuable addition to our knowledge of the best hygienic conditions for school-work.

All Friedrich's experiments were made on the same class of boys, in which the average age was 10 years, first with set pieces of dictation and at a later period with simple sums made up in a similar way to those which Burgerstein and Laser made use of.

During a period of six weeks Friedrich experimented on this class at least once at the beginning or end of every school-hour, and compared the results obtained where no intervals had occurred between the hours with those where one or more intervals had occurred.

Thus he subjected his class to the dictation test:

1. At 8 a.m.; before the commencement of morning work.

2. At 9 a.m.; after the first morning hour.

3. At 10 a.m.; after the second morning hour, an interval of eight minutes having occurred between the two previous hours.

3*a*. At 10 a.m.; after the second morning hour, without any interval previously.

4. At 11 a.m.; after the third morning hour, two intervals of fifteen minutes each having occurred between the previous hours.

4*a*. At 11 a.m.; one interval of fifteen minutes having occurred between the second and third hours.

4*b*. At 11 a.m.; no interval having occurred between the three morning hours.

5 At 2 p.m.; before commencement of afternoon work.

6 At 3 p.m.; after the first afternoon hour.

7 At 4 p.m.; after the second afternoon hour, an interval of fifteen minutes having occurred between the two preceding hours.

7*a*. At 4 p.m.; after the second afternoon hour, no interval having occurred between the preceding hours.

Afterwards he applied the arithmetical test to the children at the same times and under the same conditions, with the object of corroborating, if possible, the previous results.

The pieces of dictation set were drawn up in such a way as to offer as nearly as possible the same difficulties throughout. Each consisted of twelve sentences, and contained almost precisely the same number of letters. The sentence "Das Haus ist mit Ziegeln bedeckt" may be taken as a sample.

Following Höpfner's classification, Friedrich counted every omission or insertion, as well as ordinary misspellings, as one mistake.

Every piece of dictation occupied thirty minutes, every sentence two and a half.

Each sentence was first read out by himself, then repeated by one or two pupils, and, at a given signal, written down; at the expiration of two minutes and a half a fresh sentence was read out.

On account of slight, perhaps almost unavoidable, inequalities in the inherent difficulty of the sentences, Friedrich found it advisable to combine the mean percentage of mistakes made in each set of four sentences and compare the results thus obtained.

In this way the results of the dictation tests may be summed up in the accompanying table:

Experiment.	Time.	Intervals.	Average Percentage of Mistakes in each four Sentences.			Total Number of Mistakes.	Average Percentage per Pupil.	Out of 51 Pupils Number who had no Mistakes.
			1.	2.	3.			
1	8	—	0·217	0·206	0·212	33	0·647	37
2	9	—	0·229	0·320	0·634	58	1·137	31
3	10	One of 8 minutes, at 9 o'clock.	0·482	0·700	0·866	103	2·019	18
3a	10	—	0·769	0·372	1·537	133	2·607	14
4	11	Two of 15 minutes, at 9 and 10 o'clock.	0·415	0·559	0·884	96	1·882	18
4a	11	One of 15 minutes, at 10 o'clock.	0·542	1·219	1·162	152	2·980	12
4b	11	None . . .	0·470	1·257	1·295	162	3·176	10
5	2	—	0·091	0·185	0·392	35	0·686	33
6	3	—	0·482	0·812	1·172	127	2·490	15
7	4	One of 15 minutes, at 3 o'clock.	0·438	0·466	0·798	87	1·785	22
7a	4	None . . .	0·706	0·739	1·699	166	3·254	10

An examination of these results gives a tolerably clear index to the mental state of the children during the different stages of the day's work.

Fatigue first shows its effects distinctly in the course of the second dictation at nine o'clock.

This dictation was given after an hour's arithmetic, half of which was mental and half written work, and although the average percentage of mistakes in the first four sentences dictated shows but a slight rise over those obtained from the dictation before the beginning of school-work, yet it increases almost three-fold in the last four sentences, showing that the

result of the hour's arithmetic and half-hour's dictation immediately succeeding has induced a rapidly increasing state of fatigue.

The third dictation, which was given after two hours' school-work at arithmetic and Bible history respectively, between which a pause of eight minutes occurred, shows at the very beginning the presence of no inconsiderable fatigue, which increases in the course of the dictation. The number of pupils who made no mistakes has sensibly decreased.

Dictation III*a* was given a week later, under the same conditions of work, except that no interval had occurred between the first and second hours.

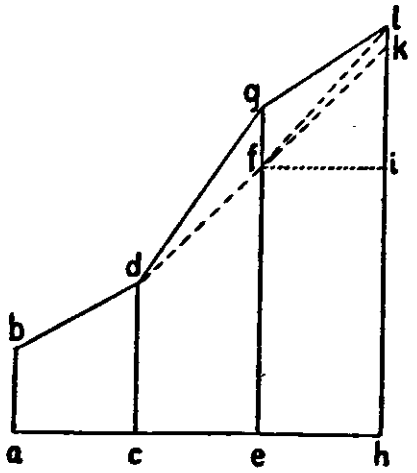
A comparison of dictations III. and III*a*. is instructive, as showing the favourable influence of an interval, even though short, between the first and second hours.

Similarly we may compare the percentages obtained from dictations set at 11 o'clock at the conclusion of the morning's work, with regard to the favourable influence exercised by intervals from work.

The most favourable results were obtained when two intervals of 15 minutes each had been interpolated between the three morning hours.

In this case the percentage obtained from the last four sentences dictated was not much higher than the corresponding percentage obtained at nine o'clock, two hours previously.

The favourable influence of the intervals between the hours of work may be graphically represented by the accompanying figure, in which the abscissæ represent the different dictation tests at intervals of an hour's work, and the ordinates are proportional to the percentage of mistakes to letters in each dictation.



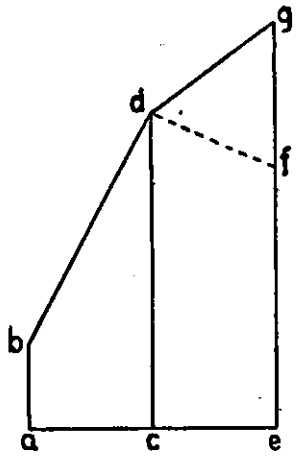
ab. Dictation I.		*ki.* Dictation IV.	
cd. " II.		*hk.* "	IV*a*.
ef. " III.		*hl.* "	IV*b*.
eg. " III*a*.			

Influence of the intervals shown by *fg*, *il*, *kl*, *ik*.

Between these dictation tests and the following ones, undertaken in the afternoon, an interval of three hours occurred. This time, as is usual in German houses, would probably be taken up by the chief meal of the day and rest or moderate exercise after it. The results of dictation V. are on the whole favourable, although the increased percentage in the last third of the work shows perhaps that the effect of the morning work is not quite effaced by the three hours' interval at mid-day.

Dictation VI. is decidedly interesting as showing the fatiguing effect of an hour's gymnastics which preceded it. So marked is the loss of mental power that the results of dictation VII., which succeeded an hour's copy-writing and singing, are distinctly more favourable. An interval of 15 minutes occurred, however, between the two hours, which doubtless contributed in no small measure to a recuperation of mental energy, Dictation VII*a*. again gives unmistakable testimony to the unfavourable symptoms of fatigue induced by two hours of afternoon work without an intervening rest. The percentage drawn from the latter third of this dictation gives evidence of fatigue almost bordering on exhaustion, if we are to assume that the work was honestly done and not scamped, and that the attention of the children was wholly devoted to the work in hand and not distracted by the fact that the day's work was nearly over.

Appended is a figure showing the result of the interval on the work done during the latter of the afternoon hours.



ab. Dictation V.
cd. „ VI.
ef. „ VII.
eg. „ VII*a*.
fg. Influence of the interval.

Friedrich now subjected his class to tests for fatigue by means of addition and multiplication sums on lines exactly similar to those adopted by Burgerstein and Laser.

For every test five addition and five multiplication sums were set, of which the following may be taken as samples:—

Add 27581340693501894726
69413258070769412835

Multiply 27583140693501894726 by 5

Twenty minutes were allowed for each set of ten sums, a period sufficient for every pupil to complete the work, so long

as his mental powers were not exhausted. These tests were carried out in the same manner as the previous dictation exercises, and the results corresponded closely with those obtained by former investigators who made use of this method. In order to show the relation between the quality of the work done and the time worked, Friedrich divided the work done into equal halves and calculated the percentage of mistakes to figures worked in each portion. The result showed that in every case the number of mistakes in the second half greatly exceeded that in the first.

This appears clearly in the appended table, in which the numbers of the tests refer to the same hours and the same conditions as those given for the dictation tests above.

Test.	Percentage of Mistakes.	
	First Half.	Second Half.
1 - - - -	0·939	1·617
2 - - - -	1·047	2·444
3 - - - -	1·387	2·517
3*a* - - - -	1·307	2·772
4 - - - -	1·427	2·458
4*a* - - - -	1·790	2·680
4*b* - - - -	2·017	2·542

In other respects the results confirmed those obtained by the application of dictation texts. From these investigations Friedrich draws the following conclusions:—

1. That the quality of the work done almost invariably deteriorates according to the length of time worked, and this deterioration sets in from almost the very commencement of working, and increases to a very noticeable extent in the course of twenty minutes' steady application.

2. That a marked falling-off in mental capacity makes itself evident in the course of the ordinary school working day. The poorest results were obtained at the conclusion of an unbroken morning's work of three hours, and of an unbroken afternoon's work of two hours. The mental capacity for work was clearly less in the afternoon than in the morning, as the rapidly increasing percentages of mistakes obtained from the results of the tests set in the afternoon hours clearly show. The three hours interval at mid-day was, in fact, insufficient for full recuperation of the mental powers. In regard to this point, Friedrich's results agree with those of Griesbach.

3. The intercalation of intervals between the hours exercised a most beneficial influence on the quality of the work. By far the best results were obtained when every hour's work was succeeded by a pause of a quarter of an hour.

This is perhaps the most pregnant result attained by Friedrich's experiments. Especially for young children, such as those on which the experiments were made, does it seem a matter of great consequence to avoid the extreme exhaustion which, according to these results, appears to be produced by long periods of work without intervals of rest.

Friedrich has clearly corroborated the results obtained by other investigators in showing that steady mental application soon produces symptoms of fatigue in young children, and he like others, moots the question whether the shortening of the usual length of the school-hour—usually fifty to sixty minutes—would not be a source of gain rather than loss, in avoiding the strain which the longer period of instruction seems to impose on younger pupils, and thereby maintaining a more even and higher quality of work throughout the school working day.

The latest enquiries into this subject were undertaken by Professor Ebbinghaus,* in Breslau, at the instance of the "Schlesische Gesellschaft für vaterländische Cultur."

For this purpose Ebbinghaus had two complete schools placed at his disposal, a boys' gymnasium, and a girls' high school.

The experiments were carried out in every class of each school, so that an abundant wealth of material was collected from which to draw conclusions, while apart from the main end of the investigations, a highly interesting feature of Ebbinghaus' work lay in a comparison of the achievements of classes of the same average age in each school. Ebbinghaus followed the plan initiated by Laser, of setting tests of ten minutes duration to the classes before or after every school-hour.

Amongst several tests of which Ebbinghaus availed himself in his experiments, Burgerstein's dictation and arithmetic tests come first, and the results of these corresponded pretty closely with those previously obtained by other investigators. In the first two hours the speed of reckoning increased, attained its maximum generally in the third hour, then fell off towards the end, though sometimes rising again in the last period. The number of mistakes increased steadily to nearly two-fold towards the end. As was however pointed out in the case of Burgerstein's experiments, the effect of the monotony of the work on the children is an unknown quantity, though probably not an inconsiderable one, and must detract considerably from the value of any conclusions which may be drawn from the results.

Ebbinghaus also made use of what is known as the "Memory Test."† This consists in reading out to the class at a definite rate a list of single cyphers, which are then written down by the children from memory.

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* H. Ebbinghaus, Ueber eine neue Methode zur Prüfung geistiger Fähigkeiten und ihre Anwendung bei Schulkindern.

† This method has been employed in investigations into the mental powers of children, apart from the question of fatigue. *Cf.* Jacobs, Experiments on Prehension. Mind XII. p. 75, 1897; and Th. L. Bolton, The Growth of Memory in School Children. American Journal of Psychology, IV., p. 362. 1892.

Ebbinghaus read out ten such lists, of which each set of two contained 6, 7, 8, 9, and 10 cyphers respectively. The lists were graduated in this manner on the supposition that to remember and write down a list of six cyphers is not a too difficult task for a child of eight years old, the age of the children in the lowest classes examined, while to reproduce ten cyphers correctly should prove a sufficiently hard task for the members of the highest classes.

Considerable doubt has, however, been cast on the accuracy of this supposition.

Experiments instituted by Dr. Schiller in the boys' gymnasium in Giessen went to show that for the second class of the preparatory school containing boys of the average age of eight and a half, the task of reproducing six cyphers from memory correctly was too difficult.

Ebbinghaus found that the number of children who did this correctly was, on seven successive days, 11, 48, 44, 30, 48, 44, 77 per cent. of the whole class, or an average of 43 per cent; a result which seems to justify amply the opinion that the task chosen was too difficult to be a fair test of fatigue, while the remarkable increase in the number of those who did the task correctly in the course of seven days is a striking example of the influence of practice, and renders the task of extracting trustworthy data by this means in regard to the fatigue of a school-day still more difficult.

The memory method is also open to the same objection which has been noticed by Kraepelin in regard to the previous tests, namely, that the mental operations involved are of too simple a character to afford a reliable clue to the mental state as a whole. Only certain faculties of the mind are called into play and those not of the highest order. The memory plays no doubt an essential part as the basis of all higher intellectual activity, but is, after all, only a basis, and in its simplest manifestations often directly opposed to more complicated and higher intellectual processes. Marked capacity for mechanical reproduction from memory is frequently accompanied by weak powers of perception and judgment, and it is therefore open to doubt whether tests based on the exercise of memory alone can be accepted as a guide to the mental capacity and the influence of fatigue in reducing the same. Ebbinghaus, in the results of the application of the "Memory Test," actually found that in each class the advantage in reckoning lay generally with the lower and presumably less intelligent half of the class, that in fact, in simple memory work, the mentally weaker pupils displayed superior powers.

A third and hitherto untried method was also made use of by Ebbinghaus with the special object of calling into play as far as possible the higher intellectual faculties.

This he characterised as the "Combination Method." As the first essay of its kind its employment was necessarily of a more or less tentative nature. It consists in placing before the class to be examined pieces of prose in which certain syllables, letters or

works are omitted. These the pupils had to supply according to their powers of judgment, and with due regard to the context. Here are the first few lines of a piece selected from "Gulliver's Travels," and arranged as a test for the lower classes of the schools examined. Nach langer Wand — — in dem fremden Lande fühlte ich — so schwach, dass ich — — Ohn — nahe war. Bis — Tode — mattet s— ich ins Gras nieder und — bald ein, fester als — mals in — Leben u. s. w.

Each dash stands for one syllable omitted. The piece selected for the three higher classes was of a somewhat more difficult character with more frequent omissions.

One distinct advantage in this kind of test is to be found in the fact that its novel character, and the absence of a repetition of similar figures or numbers, tended to eliminate the influence of practice and the depressing effect of work of a monotonous character.

On the other hand it is open to doubt whether it is not, on account of its very novelty, and of our ignorance of the mental attitude in which different children would approach such a task, a somewhat unreliable guide to the state of the mental powers.

Ebbinghaus himself allowed that lack of interest or other causes induced some of the children to write down any nonsense that came into their heads, and take no trouble to supply the omissions with reasonable regard to the context.

The test, however, was unquestionably successful in bringing to light the difference in the mental capacities of the upper and lower boys of each class, thus showing that it made a real demand on the higher mental faculties, and attained to a certain extent the end for which Ebbinghaus devised it.

As regards the main issue of the test, the determination of the fatigue engendered by school-work, the best results were attained at the first trial, at the beginning of the school-day; from thence the character of the work done in the middle and upper classes deteriorated more or less, but with considerable variation, often rising again to a comparatively high level in the last trial at the end of the morning's work, while the number of mistakes increased on the average to twofold, a result which in Ebbinghaus' opinion does not point to any severe depression of mental power. On the other hand he throws some doubt on the expediency of a morning's work of equal length for younger children, as the results of the test in the lower classes showed a very considerable and steady deterioration from the beginning of the day's work to the end.

Whether or not this conclusion is fully justified can only be determined when fuller investigations have proved the efficacy of this means of testing the comparative mental power of children, and when the results of these are taken in connection with those drawn from other and equally important sources.

The Third Method, by Means of the Aesthesiometer.

The measurement of mental fatigue by means of the sensitiveness of the skin—*Tastsinnes-* or *Sensibilitäts-Messungen.*

This method was introduced by Professor Griesbach, of Mülhausen, in Alsace,* and on account of the comparative exactness possible in the measurements, the apparently close connection between mental fatigue and sensitiveness of the skin, and the ease with which the measurements can be made, it seems likely to supersede all previous methods.

Our skin is the organ of local sense. When any portion of it is touched a certain irritation of the nerves is set up, the sensation of which is conveyed to the brain and enables us to distinguish the spot. If, however, two adjoining spots are touched at the same time, it is not always possible to recognise two separate impressions on the nervous system.

Different parts of the body, too, exhibit widely different keenness of perception in this respect. The degree of sensitiveness of any part is gauged by applying the two points of a compass to it, and moving them either apart or together, until that particular distance is arrived at, at which the two separate sensations are just indistinguishable as such, when the eyes are kept shut. This distance gives the measure of the sensitiveness of the skin at that spot.

That this sensitiveness is very different, at different parts of the body, will be gathered from the following table, based on the average of a number of measurements taken in the manner just described.†

	Critical distance.
Tip of the tongue	1 millimetre.
Red upper lip	4 "
Tip of the nose	7 "
Palm of the hand	11 "
Skin over the knuckles	17 "
Lower part of the forehead	22 "
Shin	39 "
Breastbone	44 "
Lumbar region	52 "

Now the absolute values of these measurements are found to be by no means the same in different individuals, and practice has the effect of rendering the delicacy of perception keener, but the relative sensitiveness of the different parts of the body is found to be strikingly constant, so long as the individual is not mentally fatigued.

Moreover, certain regions are much more susceptible to loss of sensitiveness in consequence of mental fatigue than others, the

* *Griesbach*, Energetik und Hygiene des Nervensystems in der Schule.
† *Ranke*, Der Mensch. Leipzig, 1887, p. 554.

cheekbone and forehead in particular being peculiarly good indexes in this respect.

On every part of the body, then, there is a certain maximum "sensation area" — "*Empfindungskreis*" — within which the sensation of two points is only realised as one.

From a physiological point of view, these "sensation areas" are regions of the skin within which the nerve threads which furnish it are so closely connected that although they convey separate impressions to the brain when excited separately, yet the difference in the impressions is so slight as to be indistinguishable when different points of the region are touched at the same time.

Now in order to realise impressions on the skin a certain state of consciousness is necessary, and it is clear that all factors which restrict or promote the activity of our consciousness must influence the delicacy of our perception of such impressions and consequently affect the size of the sensation area.

Close attention diminishes the latter, failing attention increases it, and so Griesbach finds that "mentally fatigued persons who, as exhaustion increases, lose their power of attention, exhibit a corresponding increase in the size of the sensation area, and thus the "Aesthesiometer," as the specially designed compass is called which is used in these experiments, proves a reliable gauge of the degree of mental fatigue.

Proceeding from this standpoint, Griesbach ascertained the increase in the size of the sensation area after mental work in various parts of the body including the forehead, the cheekbone, the tip of the nose, the underlip, the ball of the thumb, and the tip of the index finger. The experiments were very carefully carried out and in each case the distance between the points of the "Aesthesiometer" was gradually increased until the greatest distance was reached at which the impressions of the two points produced the sensation of only one.

In order, too, to gain some notion of the degree of fatigue produced by various kinds of brain work the experiments were not confined to pupils of the various classes of the Oberrealschule and Gymnasium in Mülhausen but were extended to other persons such as clerks in business or counting-houses, young men engaged in trades and to those who have to give their attention to the working of machinery while performing physical work at the same time.

In addition, various masters at the schools were subjected to the test before and after the day's work, and one school inspector also underwent it before and after acting as examiner at one of the schools.

Griesbach had also the opportunity of applying the tests to boys who were in for the examination to qualify them for one year's military service.

The tests were applied in the schools not only before and after every school-hour, but also on Sundays and holidays with a view to determine the normal sensitiveness of the skin; and the results of measurements taken at various hours on these days

showed that the deviation from the normal during a day of rest was very slight.

The direct and unmistakable influence of severe mental work in lowering the sensitiveness of the skin may be gathered from the following experiment.

R. H. is a pupil in the upper third of the Mülhausen Oberrealschule, 13 years old, whose skin sensitiveness was tested at 4 o'clock on a school holiday, on which he had done no previous brain work, and at 5 o'clock after one hour's private instruction in mathematics which involved making geometrical constructions and reckoning in his head.

——	Four o'clock.	Five o'clock.
1. Forehead - - -	3·5	10·5
2. Tip of the nose - -	2	4
3. Red of the lip - -	1·5	2·5
4. Cheekbone - -	5	13·5
5. Ball of the thumb -	4	8
6. Tip of the finger - -	1·5	2·5

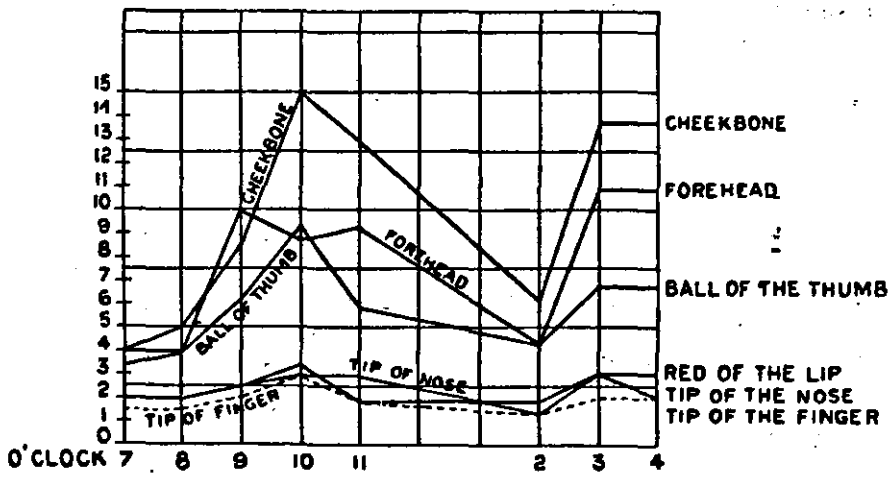
The next table gives the measurements taken from a pupil of the fifth class aged eleven years, of average physical and mental powers, the first column being the measurements taken at 12 o'clock, at the conclusion of the 5 hours' morning work in school, broken by intervals of 10 to 15 minutes between each hour, and the second at 4 o'clock, after 4 hours rest from mental work.

——	Twelve o'clock.	Four o'clock.
1 - - -	13	4
2 - - -	4	2
3 - - -	2	1
4 - - -	12·5	5
5 - - -	9	3
6 - - -	2	1

The next measurement is from a boy of good health, average capacity, and fair industry, selected from among a number of measurements taken in the fifth class of the Oberrealschule.

Table of Work - - -	7—8 Natural History.		8—9. Arithmetic.	9—10. Geography.	10—11. Gymnastics.	11—12. Free.	2—3. Arithmetic.		3—4. Practical Work.	Sunday.
Time of Measurement -	7.	8.	9.	10.	11		2.	3.	4.	11.
Forehead - - - -	3·5	4	10	9	Considerably heated. 9·5	-	4·5	11	11	3·5
Tip of the nose - - -	2	2	2·5	3	3	-	1·5	3	3	2
Red underlip - - -	2	2	2·5	3·5	2	-	2	3	2	1·5
Cheekbone - - - -	4	5	9	15	13	-	8	14	14	3·5
Ball of the right thumb -	4	4	6	10	6	-	4·5	7	7	4
Tip of the first finger - -	1·5	1·5	2	3	2	-	1·5	2	2	1

If we make the hours of measurement the abscissæ, and the values of the measurements the ordinates of a system of co-ordinates, the different degrees of sensitiveness of the skin may be graphically represented in the annexed figure.



Here, the measurements taken at 7 o'clock in the morning, *i.e.*, at the commencement of school-work, coincide fairly closely with those taken on Sunday, and we may assume that the burden of school-work was not so heavy as to prevent the mental fatigue of the day from being dissipated by the rest of the succeeding night.

On the other hand, the afternoon work evidently makes great demands on the boy's energy, for the measurements after one hour's arithmetic from 2 to 3 o'clock are on the whole as high as after 3 hours' morning work. Nor is the boy at 2 o'clock free from traces of fatigue.

It is interesting to note that the gymnastics, to which the boy evidently devoted himself with no lack of energy, as the note "considerably heated" is appended, has but little restorative influence, the measurements after this hour being but slightly less than the previous ones.

Throughout the whole of Class V., which included boys of thirteen to fourteen years of age, the afternoon work produced great reduction in the sensitiveness of the skin.

In Class IV., with boys a year older, the afternoon work yielded measurements of a much more satisfactory character; but the work consisted of history and gymnastics, the former of which has been found to make very slight call on the mental powers, while the latter does not as a rule tend to minimise the sensitiveness of the skin if not indulged in too vigorously.

The following table gives the measurements of a boy of 15, of

development somewhat below the average for his age, and ordinary ability:—

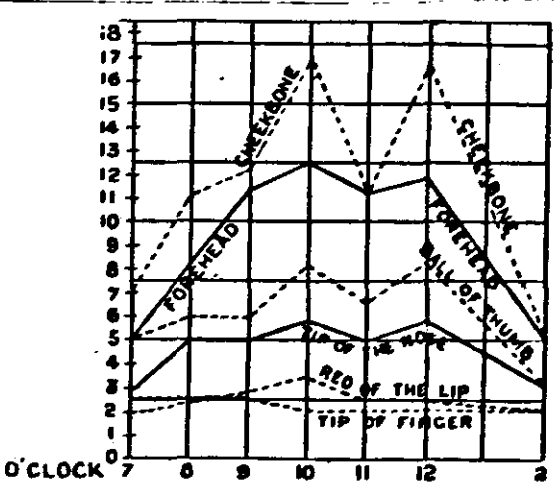
Table of Work	7—8. German.		8—9. Drawing.	9—10. Drawing.	10—11 Writing.	11—12. French.	2—3. History.		3—4 Gymnastics.	Sundays.
Time of Measurement	7.	8.	9.	10.	11.	12.	2.	3.	4.	
1	4	8	7	6	6	8	4·5	6	6	4·5
2	1·5	2·2	2·5	2	2	4	1·5	1·8	2·5	1·8
3	1	2·5	2	2·5	1·5	2·5	1·2	1·5	2	1
4	4	7·5	13	11·5	11·5	14·5	5·5	9	8·5	4
5	3	4·5	6	5	5	5·5	2·5	6	5	3
6	1	2	2	2	2	2·5	1·2	1·5	1·8	1

Now let us compare with this the record of a boy in the fourth class of the Gymnasium.

Here the school-work only extends over the morning hours, there is no afternoon instruction.

The accompanying table and diagram refer to a boy of thirteen of not particularly healthy appearance, but of good ability and industrious:—

Table of Work	7—8. Natural Science.		8—9. Latin.	9—10. Geometry.	10—11. Geography.	11—12. Latin.	—
Time of Measurement	7.	8.	9.	10.	11.	12.	2.
1	5	8	11·5	12·5	11	12	5
2	3	5	5	6	5	6	3
3	2	2·2	3	3·5	2·5	2·5	2
4	7	11	12	17	11	17	5
5	5	6	6	8	6·5	8	3·5
6	2·5	2·5	2·5	3	2	2	2



The measurements taken from other boys in the same class agree with this one in the main.

An interesting feature is the evidently exhausting nature of the hours at Geometry and Latin and the recuperation which takes place during the geography hour.

The figures recorded at 2 o'clock agree very much with those at 7 o'clock in the morning.

On the whole the evidence of these figures goes to show that the actual school work of the Gymnasium makes a greater tax on the mental powers than that of the Oberrealschule.

In all these measurements, however, the manner in which the class was conducted, and the energy infused into the lesson by the teacher, proved of more importance in influencing the sensitiveness of the skin than the kind of work in question.

Thus, in the case of the Lower First of the Gymnasium, the figures taken from the cheekbone rose from 15 to 20 at a history lesson from 10 to 11 o'clock, but fell from 20 to 14 during a Latin lesson in the succeeding hour, and measurements on other pupils of the same class gave similar results in every case. The recovery of sensitiveness during the Latin hour was attributed to the fact that the teacher was accustomed to deliver a lecture in this hour which made but slight call on the mental powers of his hearers.

Griesbach next extended his experiments to pupils of an industrial school.

Here the additional hours of practical work over and above a fair complement of school instruction produced a very marked lowering of the sensitiveness in the course of the day.

The daily work of the pupils averaged nine to ten hours a day, including home-work.

The figures given may be taken as an average case.

Table of Work	7—8. Mechanics.		8—9. Mechanics.	9—10. French.	10—11. Algebra.	11—12. Anal. Geom.	—	Sunday.
Time of Measurement	7.	8.	9.	10.	11.	12.	3.	4.
1	4·5	5·5	11·2	9	10·5	12·5	5	4
2	2·5	3	3·2	3	4	6·5	2	2
3	3	3	4	3	3·5	4	2	1·5
4	7·5	11	17·2	12·5	18	20	5·5	4·5
5	4	6·5	6·5	7	8	9	5·5	3
6	2	2·2	2·2	2·5	2·5	3	1·5	1·5

We may notice here that French affords opportunity for recovery of sensitiveness and makes less demand on the brain than the mathematical hours between which it is interposed.

If we now compare these results with measurements taken from young clerks in business houses, we find abundant evidence of the fact that the work of the latter, although involving longer hours, makes no such demand on the brain as school-work. The next table refers to a youth of 19, of regular habits and average

physique, employed at mercantile correspondence and translating letters from one language to another, and keeping accounts.

Times of Measurement	7 a.m. (Before work.)	12.	— 2 hours' rest.	2 p.m.	7 p.m. (Work over.)	Sunday.
1	6	7·5	—	5·5	10	5·5
2	2	3	—	2	3	2
3	1·5	1·5	—	1·5	2	1·5
4	6	7·5	—	5·5	8·5	5
5	4	5·5	—	5·5	6·5	4
6	1·5	3	—	1·5	2·5	1·5

The slight decrease of sensitiveness in the course of the day compares favourably with the strikingly greater variations in that of most of the schoolboys who came under Griesbach's notice.

Similar results were obtained from pupils of the spinning and weaving school of the town, and from others employed as apprentices in engineering works.

In general, mechanical work such as engineering appeared to produce a very slight lowering of sensitiveness and, we may conclude, has as a rule but little fatiguing influence on the brain.

Finally Griesbach was able to undertake experiments on pupils of the Oberrealschule, mostly of the age of sixteen to seventeen, who were engaged in the State examination to qualify for one year's military service.

Owing to the early hour fixed for the commencement of the written examination, seven o'clock, it was impracticable to subject the youths to experiment before that hour, but measurements were taken (1) during or at the close of the examination of five hours length, (2) some hours afterwards, and (3) on a free day, in order to obtain the normal value.

Two tables are appended; the first referring to a youth of healthy appearance, good physique, and fair ability; the second, to one of poor physique, unhealthy appearance and moderate ability.

—	1st Day. German Essay.		2nd Day. French.		3rd Day. Mathematics.		4th Day. English.		Free Day.
	Hours of work 7–12.								
Time of Measurement	11.30.	4.30.	10.	1.	12.	5.	10.30.	1.30	
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
1	12	5	12	7	14	7·5	14	9	4
2	5	2	5	3	6	3·5	7	5	1·5
3	3	1	3	2	3·5	2	3·5	2	1
4	14	6	18·5	26	17	9	18·5	9	4·5
5	8	5	9·5	5	10·5	5	10·5	6	4
6		15	2·5	1.5	2·5	2	3	2·5	1

—	1st Day. German Essay.	2nd Day. French Work.		3rd Day. Mathematics.		Free Day
Time of Measurement -	11.30 a.m.	11 a.m.	3 p.m.	12.	5 p.m.	
1 - - - - - -	12	11	5·5	16	8	4
2 - - - - - -	5	5	3·5	6	3·5	2
3 - - - -	4	2·5	2	2·5	1·5	1
4 - - - - - -	15·5	16·5	9	15	9	5
5 - - - - - -	12	8·5	5·5	9	4·5	4·5
6 - - - - - -	2·5	2·5	2	3	2	1

Oral examination of same pupil. In this part of the examination four or five pupils were examined together, and in such a way that each pupil was obliged to give all his attention to the examiner during the whole of the time. The examination lasted two hours, with a break of ten minutes after the first hour. The measurements were taken immediately before and after the examination, and again on a day free from work.

—	Before Examination.	After Examination.	On a Free Day.
1 - - -	6	17	4
2 - - -	4	5	2
3 - - -	2	3·5	1
4 - - -	15	27	7
5 - - -	6	10	4·5
6 - -	2	3·5	1

Griesbach complains that the examinations of the present day make demands on the memory scarcely to be credited; the results of his experiments, at all events with boys in the above-mentioned examination were certainly lamentable. It carries with it such an important privilege that the exertions made by those entering for it, especially in the case of boys of less than average mental powers, are often dangerous to health, and the oral examination appeared to entail more mental strain than the written one. He gives it as his opinion that "Die Einführung der schriftlichen und mündlichen Abschlussprüfung für Untersekunda in einer Zeit, in welcher auf dem Gebiete des Schulwesens das Streben nach Entlastung sich immer dringender gestaltet, ist vom hygienischen Standpunkt aus zu verdammen und pädagogisch nicht zu rechfertigen."

Strong terms—but none too strong in view of the state of things brought to light by his investigations. It is against this abuse of the power of memory, too, that Griesbach most strongly inveighs, characterising it as an enormous waste of energy.

Nothing, he maintains, is a greater obstruction to the healthy activity of the brain than cramming the memory with dry facts, the learning by heart of masses of prose and poetry, dates and names, all of which serves only to cloud the reasoning powers and deaden rather than develop the mental faculties.

Out of 42 pupils who entered for the oral part of this examination, an examination which represents the highest aim and culminating point of the school life of the great majority of German boys in secondary schools, Griesbach experimented in the above manner on 35; and *according to his reports as a medical man* on the state of health of each pupil *scarcely one of these 35 was in a sound and healthy state.* Many were anæmic; others in an irritable nervous condition, which manifested itself in twitchings of the skin, palpitation of the heart, trembling hands, etc.; others slept badly, suffered from bad dreams and nightmares, or dreamt constantly of their studies, others suffered from bleeding at the nose.

It appears that the majority had been accustomed to work very late in the evenings after school, even up to twelve o'clock and later, for some weeks previous to the examination, and the results of the experiments showed that most of the pupils entered the examination with a sensitiveness of the skin already considerably lowered. Griesbach attributes this partly to the mental excitement consequent on the impending examination and partly to loss of nervous force induced by overwork.

The next table is interesting as showing the apparently fatiguing effect of private study where the pupil's attention is incessantly directed to the work in hand.

The hour's private study was devoted to solving geometrical problems which necessitated considerable calculations. The fatigue induced appears to be but slightly less than that resulting from the five hours' school-work quoted in column three.

—	Normal.	After One Hour of Private Study.	Mid-day after Five Hours' School-work.
1 - -	13·7	10·5	11·7
2 - -	2·0	4·0	4·5
3 - -	1·5	2·5	2·7
4 - -	4·5	13·5	14·7
5 - -	3·7	8·0	9·3
6 - -	1·2	2·5	2·9

Out of the 89 experiments which Griesbach carried out and reported, the following is appended as an interesting example.

The subject was a pupil of the Obertertia class of 32 boys, in the Oberrealschule. The weekly quantum of work for the class was 32 hours in school, 4 hours in workshops, and 2 hours definite home work every day—which implies an average of 7½ o 8 hours' daily mental work. The pupil's age was 14½; height 5 ft. 3 in.; weight 5 st. 9 lbs. He was reported as industrious and

attentive in class, and was accustomed to go to bed at 11 o'clock and rise at 5·30 o'clock.

Subjects	7—8. Geometry.		8—9. Natural History.	9—10. Religion.	10—11. English.	Break.	2—3. Natural History.		3—4. Drill.	4—5. Geography.	Saturday Afternoon
Time of Measurement	7.	8.	9.	10.	11.		2.	3.	4.	5.	5.
Forehead	6	9	7	6	10	–	7·5	8	5	6	3·2
Tip of the nose	3	4·5	4·5	3	4	–	3·5	4·5	3	3·5	2
Red underlip	1·5	1·8	2	2	3	–	2	2	1·2	2·5	1·5
Cheekbone	7·5	8	8	5	12	–	12	12	6	11	5
Ball of the thumb	4·5	6·5	4	3	7	–	7	6	6	6	3
Tip of the first finger	1·5	2	2	1·5	2·5	–	2·5	2	2	2	1

The Saturday afternoon measurements may be taken as representing the boy's normal sensitiveness. The measurements at 7 o'clock in the morning show a lowering of sensitiveness even before the commencement of work, which might well be attributed to lack of sufficient sleep—only 6½ hours!

We see, too, that the diminution of sensitiveness is greater at 2 o'clock in the afternoon than at 7 o'clock in the morning, despite the three hours' break at mid-day, implying that this interval was not sufficient to dissipate the fatigue produced by the morning's work. Thus, beginning the afternoon work with lessened power of resistance to fatigue, he must either accomplish less or exert his nervous forces to an injurious extent. It is questionable, however, whether at this period of the day, shortly after the mid-day meal, a depression of sensitiveness ought to be regarded as a sign of insufficient rest, and whether it is not a natural concomitant of the time of day and the condition of the body after the chief meal of the day.

The evidence of fatigue as exhibited by the loss of sensitiveness produced by the various subjects, is in distinct agreement with the results of Kemsies and other investigators and with the general experience of teachers,—Mathematics and Languages here represented by Geometry and English, producing the greatest fatigue; Religion and Natural History making little demand on the mental powers and thus admitting a recovery of sensitiveness.

The afternoon work in this case makes apparently little demand on the mental powers, for the sensitiveness at 5 o'clock is but little less than at the commencement of morning school. We may thus assume that the day's work has not unduly fatigued the boy, and that the night's rest would suffice to remove the traces of the day's fatigue. The subjects demanding greater mental exertion are suitably alternated in the scheme of work with those of a lighter character, and to this the comparatively slight loss of sensitiveness at the close of the school day may be largely attributed.

It is to be noted, however, that the lowest figures recorded during the day were considerably higher than those taken on Saturday afternoon, this being a free day. There was in fact probably a permanent loss of sensitiveness throughout the week which only the rest on Saturday sufficed to dissipate. This, however, was not so marked as to indicate any injurious strain in the system.

It may be taken for granted that in the case of a healthy subject the sensitiveness in the early morning before commencing the day's work should agree with the normal sensitiveness as measured on days free from work.

But Griesbach's measurements showed many cases in which the sensitiveness was at a comparatively low ebb in the early morning, and some even, in which the degree of fatigue evidenced at this hour must have made it impossible for the brain to meet the demand made on it in the course of the day.

In such cases no doubt the pupil would be inclined to dream away his time in school, instead of giving his attention to the work in hand and thereby allow his nervous powers to gain strength. Inattention may in such cases be regarded as nature's safeguard against over-fatigue.

Such cases of depression of sensitiveness may often, too, be referred to causes outside the influence of school work, such as general bodily weakness, nervous state of the system, too early rising, or other unhealthy conditions.

The early commencement of schools, in some places seven o'clock in summer and eight o'clock in winter, Griesbach particularly deprecates, especially for younger children.

School at seven o'clock often implies getting up at half-past five, consequently the night's sleep is cut short, a great mistake in the case of growing children. The fact is hardly to be credited that some of the younger boys whom Griesbach examined admitted that during six days a week they seldom spent more than six and a half to seven hours in bed. He points out that for younger children ten to eleven hours in bed is none too much, while for elder youths eight to nine hours is absolutely requisite.

The postponement of the hour of commencing school to eight o'clock at the earliest would go far to remedy this state of things.

The four or five hours' morning work generally produces on a child of normal health and capacity for work a reduction of one-half to one-third in the sensitiveness of the skin, which we may assume implies a considerable but not excessive degree of mental fatigue. The great mass of Griesbach's experiments, however, showed that the mid-day break of two to three hours was insufficient to obliterate the traces of fatigue thus induced. Hence afternoon work was, as a rule, begun under unfavourable conditions, and the sensitiveness of the skin generally decreased much more rapidly and to a lower ebb during afternoon than during

morning work, thus leading us to infer that the power of resistance to fatigue is much slighter in the afternoon.

Richter's conclusions are here fully corroborated, and Griesbach agrees with him in advising great care and circumspection in the arrangement of afternoon work. He points out that *two o'clock is too soon to begin,* that the digestion of the mid-day meal is thereby retarded and the brain is kept actively employed all day long, for soon after the end of afternoon school, home work must be commenced, and thus from early morning till late at night there is practically no cessation of work except for meal times, a state of things which must, in the long run, exercise a prejudicial effect on the constitution. So Griesbach advocates either a longer mid-day break or the total abolition of all afternoon work and the devotion of the time thus gained to bodily exercise in the open air in summer and gymnastics and games in closed but roomy courts in the winter.

The plan which now obtains in many Prussian schools is to devote the morning to so-called "Wissenschaftliche Arbeit," while relegating such subjects as drill and singing to the afternoon. Under this arrangement the recovery of sensitiveness after the morning's work is found to be steadier and more permanent. The question of drill, however, calls for particular attention. The general opinion that this exercise is an excellent means for dissipating mental fatigue, is not confirmed by Griesbach's enquiries. We have seen that Kemsies classed it along with mathematics as one of the most fatiguing subjects of instruction and throws considerable doubt on the value of it as a means for dissipating mental fatigue.

In cases where the exercises necessitated considerable exertion, and thus produced a heated state of the body, no recovery of sensitiveness was noted with the Aesthesiometer, often indeed further diminution. At all events the general evidence of experiments on various lines seems to point to the fact that to insert an hour's gymnastics in the course of the morning's work on the principle that it affords an opportunity for recuperation of nervous energy and consequent dissipation of mental fatigue is a fallacy. Physical exertion under strict discipline appears to produce loss, rather than gain, of nervous energy. This argument, however, does not seem to apply so generally to singing. In most cases a recovery of nervous energy was noted after this hour, though in some cases where children were known to exert themselves strongly, a loss of sensitiveness was remarked.

That the instruction in the higher public schools of Germany does make a severe demand on the energy and mental powers of boys is no doubt true; Griesbach himself comes to the conclusion which he italicises in the original:

"*Dass kein Schulknabe und selbst kein Erwachsener, ohne Gefahr für seine Gesundheit, Tag ein, Tag aus geistig so lange zu arbeiten im Stande ist, wie es der heutige höhere Unterricht bei strenger Durchführung erheischt.*"

It is probable, however, that many cases of excessive mental

fatigue developed in the course of the day and of permanent exhaustion marked by constant reduced sensitiveness of the skin at the beginning of each day's work can be traced to outside causes for which the school can hardly be held responsible.

A common cause of breakdown is to be found in the tendency to push children through a school education for which they are by nature and early training mentally unfitted.* Unhealthy hours and habits may account for others; but probably the most fruitful source of all lies in the lack of healthy and free open-air exercise, the place of which is usually taken by gymnastics.

The much greater attention paid latterly in secondary schools to modern languages and science is no doubt in a great measure accountable for the severe pressure now prevalent in these institutions.

While devoting more time to these subjects, little has been done towards relieving the pupils of the burden imposed on them by the study of the dead languages.

The method now introduced by the small but rapidly increasing number of Reform Schools† is no doubt a step in the right direction and will go far to relieve the schools of the charge of overworking their pupils.

The main features which distinguish the schools of the Reform type from other secondary schools are firmly advocated by Griesbach as the right means of relief from over-pressure. The greater freedom afforded in the choice of that line of education most suited to a boy's taste and inclination, the commencement of different languages in orderly succession and the more rational arrangement of the curriculum resulting from it, are all points the adoption of which would help to relieve the strain at present imposed in most secondary schools.

As regards the measurements which Griesbach made on teachers, the results showed that classwork imposed a greater strain on them than private tuition, while examination work proved the most exhausting.

The question of over-pressure among teachers is not one on which a definite opinion can be formed owing to lack of data, but Griesbach considers that the amount of work apportioned to each teacher should be carefully weighed, for a "mentally fatigued and consequently irritable and nervous teacher cannot be any great gain for purposes of instruction."

The Berlin Conference considered 22 weekly hours sufficient for a teacher; it often, however, amounts to 24, which is in Griesbach's opinion too much. The few measurements that have been made on teachers by Mosso and Griesbach afford strong evidence of the great mental fatigue and loss of nervous

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* *cf. Marie Landmann*, Die Ueberbürdungsfrage und die Gesundheit unserer Schuljugend. Hygiena. May 1897, p. 235.

† *cf. Parez*, Reform Schools in Germany. Parents' Review, Dec. 1898, and Jan. 1899.

energy produced by the work of teaching. Finally the Berlin Conference passed a resolution to the effect that every pupil should receive elementary instruction in the fundamental principles of hygiene. This, Griesbach thinks, would be a blessing both for school and home. Instruction ought to be given by a properly-qualified person who has studied in a hygienic laboratory, if possible by a practical school-teacher. The resolution of the Conference has not so far been acted on.

Such an institution already exists in Hungary and the reports which have appeared about it have been most favourable.

Wagner's Experiments.

The method of ascertaining the degree of mental fatigue by noting the reduced sensitiveness of the skin seemed to offer so many advantages over previously-devised methods that it gained instant favour among thoughtful enquirers into this subject.

Further ample experiments were carried out on the same principle by Dr. Ludwig Wagner in the summer of 1896, the results of which were published in pamphlet form last year.* They were undertaken in several classes of the New Gymnasium in Darmstadt, to the Teachers' Training College in connection with which Wagner was attached.

He introduced some slight modifications into the manner in which the experiments were previously carried out, amongst others adopting the plan of determining the critical distance at which the contact of the two compass points is only recognised as one, by making trial contacts at alternately greater and smaller distances, which distances are gradually reduced or increased respectively until the critical mean is struck. This mode of procedure appeared to give more reliable results than that of starting from smaller or greater distances and gradually increasing or decreasing them.

In his extremely interesting pamphlet giving the results of the measurements Dr. Wagner points out in support of the theory that a close connection exists between mental fatigue and reduced sensitiveness of the skin, that from the results of investigations made on these lines a direct connection can be traced—

1. Between the amount of change in the sensitiveness of the skin and the character of the preceding work.

2. Between the number of pupils who show reduced sensitiveness and the character of the work.

3. Between high figures, *i.e.*, reduced sensitiveness, and the character of the work; very attentive pupils, for example, showing

* Unterricht und Ermüdung. Dr. Ludwig Wagner. Berlin: Reuther und Richard, 1898.

high figures, while idlers seldom showed any great reduction of sensitiveness.

4. Between high figures and the personality of the teacher.

5. Between the sensitiveness of the skin and the relative freshness of the pupil at the commencement of school-work.

6. Between the general state of health and the curve of fatigue, *i.e.*, the nature of the increase of sensitiveness in the course of the day's work.

Of course, no direct proportion between mental fatigue and reduced sensibility can be established, one can only infer that the connection between the two phenomena is close enough to warrant our considering the results of the one as tolerably conclusive evidence of the presence in a greater or lesser degree of the other.

Wagner made his measurements usually on the back part of the checkbone near the ear, in which region the normal critical distance is about 10 mm. It will be seen from Griesbach's figures that this part of the face is more susceptible to variation in sensitiveness than any other, with perhaps the exception of the forehead, which appears to be almost equally subject to variation.

The Aesthesiometer used was furnished with blunt points and the measurements were always made on a line in the direction from ear to eye.

As Wagner's measurements were carried out on the same lines as those of Griesbach, a detailed description of his work may be dispensed with; it may not, however, be out of place to notice some of the points to which he gives prominence in discussing the results he obtained.

Amongst the three classes in which he experimented a very large proportion appeared to be in a depressed or low state of health.

In "quarta," for example, out of 18 pupils examined eight were in an unsatisfactory state.

Some gave evidence of chronic depression brought to light by the high figures recorded at the beginning of school-work, a state probably to be ascribed to the constant habit of spending too few hours in bed.

Others showed, by the enormous increase in the figures recorded during the morning, inability to cope with the ordinary school-work without the development of exceptional fatigue.

Many cases of nervous pupils are characterised by high figures at the beginning of the morning, which show, however, a slight but fairly constant reduction in the course of the work: this may in many cases be explained by the fact that such pupils are physically incapable of applying themselves to the work in hand with the energy and steadiness of a boy in a normal

state of health, and that the morning is therefore rather an opportunity to them for recuperation than for dissipation of energy.

It must, in fairness, be noted that these measurements were made towards the end of the school-year, at the busiest working time, when higher figures might naturally be expected than at other times.

In general, Wagner found that, *ceteris paribus*, the fatigue increased in proportion to the degree of attention given, but decreased in proportion to the ability of the individual.

Wagner lays great weight on the importance of recognising that it is *not so much the instruction as the instructor who should be held responsible for the amount of fatigue produced in the course of a school-hour*, and that the most carefully devised curriculum would fail to prevent the production of severe mental fatigue if the last pound of flesh were remorselessly exacted in every subject, or too little attention paid to variety, change of posture, and other aids towards the avoidance of monotony and the promotion of interest.

There are some pupils who by reason of inferior mental powers are bound to become mentally overtaxed if they make a conscientious effort to do all that is required of them in school.

Wagner strongly advocates therefore *the expediency of requiring a knowledge of school hygiene from all qualified teachers.* It should not, he thinks, be left to the chance notice of the medical faculty to determine whether a child is equal or not to the daily round of work. The teacher should be acquainted with the simpler principles of hygiene and their application to the class-room and should be able to detect from outward signs the presence of chronic mental fatigue or over-pressure in any of his pupils.

It often occurs that a pupil, in consequence of rapid growth, constitutional weakness, or other cause, is unable to cope with the work of his class, and evinces a strong disposition to idle and shirk as much work as possible. The teacher should be able in such cases to diagnose the true cause of the symptoms and treat the case in accordance with hygienic principles, sparing instead of punishing or worrying the pupil with extra lessons or detention.

Many cases of chronic inattention in children, Wagner was able to attribute with tolerable certainty to physiological causes, while in others, lack of interest and mental lethargy were often the first sign of impending sickness.

To several points in particular in the domain of school hygiene, Wagner makes special allusion. He strongly deprecates any child of nervous disposition being burdened with instruction in music in addition to the ordinary school-work. In the course of his investigations, the pertinent fact revealed itself, that of the children who studied music, two-thirds were of weak or nervous constitution, and it is probable that the study of music is in

itself strongly favourable to the production of nervous symptoms. On the other hand, however, it is possible that children of a nervous and emotional character often display a predilection for a subject such as music, which appeals to the emotional side of their character. This may perhaps account in some measure for the above fact.

As to sleeping hours, Wagner reiterates the opinions expressed by Griesbach in reference to the amount of sleep necessary for children, and the doubtful advantage of commencing morning work before 8 o'clock. The results of the measurements, taken as a whole, seem to justify the length of the intervals between the hours at present in vogue in this and many other schools in Germany, which vary from five to fifteen minutes.

The abnormally high figures, however, obtained from some children would seem to point to the advisability of making all intervals of fifteen minutes' duration; but whether such a change should be made in the interest of a relatively small proportion of children is open to question.

Although Wagner's inquiries were not directed specially to ascertaining the effect of gymnastics, yet his figures throw considerable light on the disputed question of the expediency of introducing gymnastic exercises into the ordinary course of school work, and their value as a recuperative agent.

Ninety observations were made on pupils immediately after the gymnastic hour. In the majority of these it may be taken for granted that the children were previously in a normal state of freshness after the preceding interval.

Of these 90 only 21 could be regarded as not having incurred more or less nervous strain in the course of the hour, although an increase of 1 millimetre in the measurements taken was reckoned as indicating recuperation rather than fatigue, while if an increase of 3 millimetres be regarded still as comparative recuperation, the number who exceeded this was 59 per cent. of the whole. Complete recuperation, as indicated by no apparent loss of sensitiveness of the skin, was only recorded in 9 per cent. of the measurements.

One conclusion from these figures is clear, namely, that to ascribe a mentally-restorative influence to gymnastic hours is, as a rule, misleading, and Wagner adds that, were it not that the latter half of the hour was in many cases spent in playing games, the influence of the gymnastic hour would probably appear in a still more unfavourable light.

On the whole it would probably be correct to regard gymnastic hours as on a par with the other hours of instruction in their effect as regards fatigue, and this view is only in accordance with the conclusions arrived at by Mosso as to the close action and reaction between mind and body; "Ermüdung ist ein allgemeiner Zustand des Körpers, der Nerven und Muskeln gleichmässig betrifft."

Afternoon work is strongly condemned by Wagner as worthless from a pedagogic and mischievous from a hygienic standpoint.

Of thirty-one pupils examined by him before and after two hours' "wissenschaftlich" afternoon work, only two gave indications of recuperation, a result which confirms Griesbach's conclusions on this point: there seems to be little doubt that the addition of an extra hour to the morning's work, thus making five hours in all, and leaving the afternoon free from all work of a "wissenschaftlich" character is distinctly preferable on hygienic grounds to the old and still common plan of having afternoon school for a couple of hours, by which arrangement the children are engaged in mental work practically the whole day. And every teacher can testify to the lethargy, inattention, and lack of interest which pervades afternoon classes, and which are in themselves the best testimony to the unhygienic principles involved in them.

These views are corroborated by every person who has given his attention to school hygiene. Théodore Vannod, surgeon at one of the Berne hospitals, who carried out similar experiments to those of Griesbach and Wagner in the schools of Berne, writes:*

"L'élève n'a pas le temps de trouver la compensation nécessaire pour faire disparaître la fatigue occasionée par les travaux du matin. Nous partageons entièrement le point de vue de Prof. Griesbach, qui demande, sinon l'abolition complète des classes de l'après-midi, tout au moins un plan d'études qui n'autorise pour les heures de l'après-midi que des leçons n'occasionnant pas de fatigue intellectuelle, par exemple le dessin, le chant et la gymnastique. L'enseignement des langues anciennes et des mathématiques doit être absolûment réservé aux classes du matin; sans cela nous arrivons à un véritable épuisement intellectuel de l'élève, absolûment nuisible à sa santé. On pourrait même prolonger les heures d'école de la matinée jusqu'à une heure pour procurer ainsi à l'écolier autant de liberté que possible l'après-midi."

Concluding Remarks.

Passing in review the investigations here described, one is struck as much by the methodical and unsparing labour which has been devoted to the subject of mental fatigue both by educationists and physicians in Germany, as by the close agreement in the results of these investigations, although conducted independently, in various schools and on three entirely different systems.

This agreement affords a strong presumption of the general correctness of the means employed to detect mental fatigue, and of the intimate connection between that phenomenon and the variations in the mental or physical state, on the observation of which the investigations in question were based.

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* La Fatigue Intellectuelle et son Influence sur la Sensibilitée Cutanée. Par Th. Vannod. Génève: Imprimerie Rey et Malavallon. 1896.

In many cases these were of a more or less tentative character, and the conclusions drawn from them could scarcely have been accepted as in any way authoritative had they not often been corroborated by the results drawn from other independent sources. The connection between work and fatigue, with its concomitant mental and physical symptoms, is of course purely relative and varies *for* each individual as well as *in* each individual under varying circumstances.

But if absolute data are out of the question, the efforts of investigators have been so far successful that they have awakened public interest in this department of school hygiene, and gained a recognition of the fact that the organisation of school-work ought to be drawn up with due regard to the health and strength of the scholar, and that no scheme of school-work should be allowed to exist in which the day's work would appear to involve greater fatigue than could be dissipated by the night's rest.

The most serious and most frequent cases of mental exhaustion from overwork seem to have been noticed amongst pupils under twelve years of age, a serious indictment considering that the years from nine to twelve are generally looked upon as those of feeblest development, particularly in the case of boys. There seems to be a general consensus of opinion amongst investigators that the hours in vogue at most schools are too long for children of this age. Thirty minutes is regarded as the limit of time during which the serious attention of children to one subject can reasonably be demanded; though with skilful introduction of variety into the lesson, forty to forty-five minutes might be devoted to it without entailing too severe a strain on the mental powers. One fact at any rate stands out clear, viz.:—*That nothing exhausts children so much as prolonged mental exertion combined with strict attention.*

The important question of intervals of suitable length between the hours of work has been ably investigated by Friedrich and Griesbach, and their experiments led them to the conclusion that continuous work should never exceed one school-hour. The most favourable results were obtained when intervals of five to fifteen minutes occurred between each lesson.

Friedrich's experiments, however, seem to point to the advantage of making the intervals rather longer than is usually the case, especially when all the school-work is done in the morning.

The time lost in the intervals is, Friedrich maintains, amply compensated for by greater freshness and capacity for work.

Richter proposes the following as a suitable time-table for such schools:—

1st hour - - 8 to 8.50.
10 minutes interval.
2nd hour - - 9 to 9.50.
15 minutes interval.
3rd hour - - 10.5 to 10.55.
20 minutes interval.
4th hour - - 11.15 to 12.
30 minutes interval.
5th hour - - 12.30 to 1.15.

Such a programme would, he maintains, if the intervals were made use of in a legitimate way, afford the pupils ample time to recoup their mental energy during the intervals and come fresh and unfatigued to work each hour.

The question as to how the intervals between the hours of work should be filled up is one on which very different opinions are held. Mosso, who lays stress on the intimate connection between mental and corporal work, strongly disapproves of devoting them to gymnastics, and considers that such a course only tends to further wear and tear of the nervous system.

Dornblüth, on the other hand, in his interesting article, "Sollen die Schulen ihre Turnstunden zwischen den andern Unterrichtsstunden aufgeben?" (*see* Bibliography) strongly upholds the prevalent system in Germany of interpolating gymnastic exercises between the hours of school work on the principle that after severe mental labour any other form of activity, for preference moderate corporal exercise, has more effect in dissipating mental fatigue than complete rest; and maintains that the interpolation of such well-regulated moderate exercise has proved itself by experience to be in no wise prejudicial but rather beneficial to the work done in the ensuing hours.

Much no doubt depends on the way in which the gymnastics are carried out.

If allowed to exercise themselves at their own free will, it is doubtless quite possible for boys to overheat and tire themselves, and thus render themselves temporarily unfit for quiet mental work; but a gymnastic class conducted in an orderly manner, where one pupil takes his turn after another, makes but a slight demand on the attention or the muscular powers, and doubtless offers favourable conditions for recovery from mental fatigue.

This question, however, has still to be thrashed out, and more experiments on the effect of gymnastics between school hours would form a welcome addition to the present scanty knowledge of the matter.

The results of enquiries into the effect of afternoon work were in general of an unfavourable character. The reasons for this have been already discussed. On the whole, however, the evidence collected seemed to favour a morning's work of five hours as hygienically more suitable than a division of work between the morning and afternoon; in any case, all work involving severe mental exertion should be done in the morning, and the afternoon, if utilised at all, devoted to technical subjects, such as gymnastics, needlework, writing, drawing, singing, etc., which make but slight demand on the mental powers.

The limit of healthy mental fatigue should never be exceeded and it stands to reason that children whose mental powers are exhausted by morning and afternoon school are not in a position to commence serious brain work again in the evening without risk of injury to health.

One very significant fact alluded to by Mosso, and constantly

noted by Griesbach and Wagner, was the tired state of many of the children at the commencement of the day's work. This might be the natural result of some specially severe mental or physical exertion on the preceding day, the traces of which the night's rest had not sufficed to obliterate: taken in conjunction with other symptoms, however, and with the behaviour of the children under the tests put to them in the course of the day, it appeared to indicate, in many cases, a state of chronic depression or nervous exhaustion.

That this is often due to other causes than the fatigue induced by school-work, may, however, be gathered from the fact that many of these children admitted having spent only six or seven hours in bed at an age when ten would not be too many.

The early hour at which many of the day schools in Germany commence is, perhaps, partly responsible for this, but the habit of allowing children to sit up far beyond a reasonable hour for retiring was in many cases the cause of it.

The influence of holidays in affording opportunity for rest and recuperation of mental vigour has received as yet but slight consideration. The importance of the Sunday's rest and its influence on the work of the week was noted by Kemsies, but the questions of the length and frequency of holidays, and their relative importance for children of various ages, might with advantage form the subject of future investigations.

Dr. Max Brahn* says:—"Holidays are necessary as often as, in the ordinary course of school-work, a time occurs when the nervous and mental exhaustion can only be checked by a longer cessation from work." It can, however, scarcely be questioned that they are expedient if not necessary, at regular times and seasons, and that the ordinary course of school-work ought never to tax the energies of scholars so far as to make holidays an absolute and immediate necessity.

I wish in conclusion to express my sincere acknowledgments to Herr Professor Hornemann, of the Real-Gymnasium I. in Hanover, for his very kind assistance and advice on various points in connection with the subject of this paper; also to Herr Oberlehrer Köcher, of the Kaiser Wilhelm Gymnasium, by whose permission I was able to make use of the valuable library attached to the school; and to Mr. H. W. Atkinson, of Rossall School for his very able and careful revision of this paper.

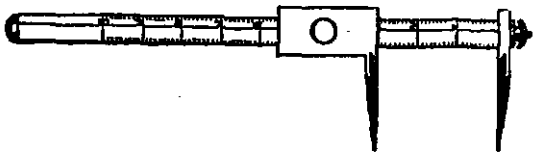
C. C. Th. Parez.

* *Brahn*, Die Geisteshygiene in der Schule. Deutsche medicinische Wochenschrift. 24th June, 1897.

APPENDICES.

A.

By the kindness of Dr. Bruns, Specialist for Nervous Diseases in Hanover, I have been enabled to make the accompanying sketch of an *Aesthesiometer*, the instrument employed by Professor Griesbach, Dr. Wagner, and others in their investigations.



THE AESTHESIOMETER.
(Half actual size).

The bar is of polished steel and graduated in centimetres and millimetres. The two points are of vulcanite, the one at the end being fixed, while the other slides along the bar and is adjusted to any position by a small screw. The tips of the vulcanite points are blunted, as it is important when applying them to the surface of the skin to avoid the irritation produced by sharp points. The instrument was made by Katsch, Philosophical Instrument Maker in Munich. It costs about 15m.

B.

An interesting apparatus is now being perfected by Dr. Schrader, Professor at the Kaiser Wilhelm Gymnasium in Hanover. It promises to offer a simpler and more direct means of measuring mental fatigue than any of the methods hitherto devised. The principle involved is the same as that on which the experiments with the Aesthesiometer are based, namely, that mental exertion produces a deadening or fatigue of the nerve centres, thus rendering them less sensitive to external impressions. Schrader's apparatus, however, is designed to determine directly the actual retardation in the time of reaction of the sensorium itself after mental exertion. The apparatus is so constructed that the time which elapses between the act of seeing an electric spark and that of pressing a knob in electrical connection is registered by means of a photographic appliance. With this apparatus it will be possible to measure the influence of mental exertion on a number of persons at the same time—possibly on whole classes; and in this respect it should prove a distinct improvement on previous methods.

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REPORT OF THE CONGRESS ON THE EDUCATION OF FEEBLE-MINDED CHILDREN, HELD AT AUGSBURG, APRIL 10–12, 1901.

The Congress on the Education of Feeble-minded Children, held at Augsburg April 10–12, 1901, was convened at the instance of the Special Schools Union of Germany under the presidency of Inspector Dr. Wehrhahn of Hanover and met primarily to discuss and make recommendations for future legislation with regard to feeble-minded children in the German Empire.

There were 362 members of the conference consisting mainly of inspectors, teachers and medical men, including representatives from the Prussian, Bavarian and Saxon Government Education Offices, and foreign delegates from the Board of Education, Whitehall, from Austria, Switzerland and Sweden.

The account of the proceedings may be most advantageously grouped under the following headings :—

(1.) The Selection of Feeble-minded children.
(2.) School Provision.
(3.) The Teacher and the Curriculum.
(4.) After-Care.
(5.) Appendices.

The Selection of Feeble-minded Children.

The special school, or school for feeble-minded children, is intended solely for children of inferior brain power who yet possess sufficient intelligence to be amenable to the discipline of their own homes, and who are capable of benefiting by instruction sufficiently to enable them to pass out of school at the limit of school age with a probability of being able to earn their own living.

Generally speaking, the children admitted to a special school must have been in attendance at the ordinary school for one or two years and have been found not to be making satisfactory progress. As the minimum age for compulsory attendance is six years in Germany, it follows that children attain the age of seven or eight years before they are allowed to enter the special school. The admissions take place as in ordinary schools once a year, and the initiative is taken by the head teachers of surrounding schools, who notifiy their exceptional cases. The children are then visited in their own homes by the head of the special school. In this way he becomes acquainted with the parents and is enabled to enlist their sympathy, at the same time gaining a valuable insight into the child's surroundings. The child may

then be admitted on probation for a few weeks, when he is brought before a committee consisting of the inspector, the school doctor and the teachers of the child.

Among the children presented for admission, many are for various reasons excluded from attending the special school. Blind and deaf cases are properly provided for in institutions. Children who are backward on account of irregular attendance or illness are not considered eligible for special schools. The Congress also recommended that children who were merely backward in one or two subjects of instruction should not be sent to a school for the feeble-minded.

Idiots, epileptics and children with moral perversion are also recommended for exclusion, while a period of probation should be given to cases apparently defective or imbecile. If, after observation, it is found that the deficiency is too severe, and especially at the same time if the home surroundings are detrimental, the child should on exclusion be sent to an institution. On the other hand, a child whose progress is sufficiently favourable, is to be returned to the ordinary school. In well established schools however, it happens very seldom that a child can be returned. It is claimed that children when properly selected will in most cases need the care of the special school till the limit of school age. *See* Appendix II., Frankfurt, Köln and Leipzig.

General lack of progress is accepted as the cardinal sign of mental deficiency in Germany. It is to be noted that no mention was made of the so-called physical signs commonly referred to in the examination of feeble-minded children in England, though poverty of intelligence is not infrequently associated with other pathological defects. A large proportion of children suffer from imperfections in speech. Deafness, blindness and epilepsy may in the same individual be coupled with feeble-mindedness.

According to German statistics 14·40 per cent. of defective children have imperfect speech, ·16 per cent. are aphasic, ·18 per cent. are totally deaf, 3·00 per cent. partially deaf, and 1·15 per cent. are epileptic.

The causes of feeble-mindedness from a medical point of view are difficult to classify owing to the many kinds of deficiency and the variable states of intelligence which are grouped under this one heading, many of which have nothing more in common than a mere negative quality—the inability to learn. At the same time some attempt has been made to refer these forms of sub-normal development to certain pathological antecedents. According to Dr. Müller of Augsburg, heredity is said to claim 70 per cent. of the whole, which means that feeble-mindedness in the child is largely the outcome of evil habits and preventible disease in the parent. The remaining 30 per cent. are to be referred to illness arising after birth, especially the febrile diseases of childhood, to malnutrition, to starvation and neglect.

Statistics are, however, of limited value. They depend largely on family and individual histories which are difficult to obtain

accurately and truthfully, and there is, therefore, room for prolonged and careful research in this field, in order to arrive at evidence upon which absolute reliance can be placed.

The medical jurist would classify cases of feeble-mindedness into two divisions:—the mental and the moral. The mentally deficient exhibits defects of faculty only and is to be known by his weakness of memory, of synthetic and analytic power of thought, together with either a tendency to spontaneous lying or to excessive credulity. The second type or morally defective reveals undue selfishness and egoism, is spiteful or mischievous even to the point of danger, and may betray perverted animal tastes or perverted affection.

The School.

Provision for the education of the feeble-minded may be either by day schools, auxiliary classes in ordinary schools, or by institutions.

The day school is to be recommended for the majority of cases. The institution is essentially for severe cases, and for children who, though capable of some improvement here and there, will never be able to stand alone in the world. An institution may be the best place to send a child where the home surroundings are very unfavourable. At the present time in Germany, the institutions for defective children are private and mainly conducted by religious bodies.

The day schools number 98, and there are in all 326 classes, or an average of three classes to a school. At Leipzig there are, however, as many as 14 classes, at Cologne 11 or 12, and at Frankfurt 6. There are 7,013 children in attendance, and it is estimated that there would be 60,000 if complete provision were made. The number of children in each class varies from 20 to 25. There are 3,940 boys to 3,073 girls, or four boys to three girls. At Leipzig, the proportion is three boys to two girls. So that generally speaking the boys preponderate. Of the 326 classes, 262 are mixed, 28 for boys, 23 for girls, and 13 are classes held in ordinary schools—a method of provision which the conference condemned.

Eighty three per cent. of the children entering day schools are able to earn their own livelihood on leaving. The remaining 17 per cent. return to the community, a burden and a danger.

There is at present no law in Germany governing the education of the feeble-minded, and proposed legislation is partial in that power is sought to establish day schools only. For the 17 per cent. of children who never become anything but dependent, a day school will not suffice. Except for the few hours in which it claims them daily, it leaves them for the major portion of the day exposed to influences which as often as not undo the wholesome tendency of the school. At the limit of school age, they leave to enter the world wanderers in semi-darkness, helpless, aimless and unrestrained, to swell the ranks of crime and vice. The day school is in fact incomplete in itself, so far as it leaves a considerable

proportion of children undeveloped educationally and morally, and some form of institution for the more difficult cases is therefore a necessary and inevitable corollary to any scheme providing for the proper care of the feeble-minded.

The Teacher and the Curriculum.

The teaching is almost entirely in the hands of men. Women are employed mainly to give instruction in needlework and kindergarten. Of 362 members of the Congress about six were women. There is an undoubted advantage in being able to place boys over 12 years of age under men. At that age they are apt to become unmanageable, and require stronger discipline than a woman can be expected to wield. Manual instruction for elder boys ought certainly to be given by male teachers, though a woman teacher is probably better for younger children and for girls generally.

There is no special training for teachers of defective children in Germany. A teacher with special aptitude is appointed from the ordinary school, and it is important to observe that he can be transferred again to the ordinary school at any time without loss of seniority. Special attention is given from the very commencement to articulation and speech, no error or defect of pronunciation being allowed to pass uncorrected. At Leipzig there is a systematic course for the study of voice production, expression, organic defects of speech, correct diction and idiom.

Manual Instruction.—There was a division of opinion among the members of the Congress as to the value of manual instruction to the defective child. The majority were in favour of making it obligatory, and recommended that schemes of manual instruction should be devised not merely as a succession of mental exercises, but that they should also have regard to the main object in educating the feeble-minded—to enable him to lead an independent existence in after life. In all cases manual instruction is better left in the hands of a trained teacher than to a craftsman.

The Leipzig scheme of manual work for boys includes :—

(1.) The performance of set actions and duties.
(2.) Froebel exercises.
(3.) Cardboard modelling.
(4.) Fretwork.
(5.) Woodwork and drawing.
(6.) Industrial occupations: cane weaving, mat making, straw plaiting, and rush plaiting.

For the elder girls there is knitting, crochet, linen marking, darning and mending. There appears to be no provision for cookery or laundry work, and as a rule girls receive less consideration than boys, owing largely no doubt to the deficiency of women teachers on the staff.

Gardening has not been adopted generally, but was recommended by the Congress for inclusion in schemes of instruction wherever possible.

Reading.—Defective schools in England make use of Infant School Readers in the lower stages. In Germany there are no Infant Schools, and therefore no Infant School Readers, and the question of a suitable reading book for defective schools seems to have offered considerable difficulty.

At Leipzig and Frankfurt, speech and articulation lie at the root of all instruction in reading. Germany recognises, more clearly than we have done in this country, the uselessness of attempting to teach a child to read before he can correctly utter the words he is to learn. At all stages clear utterance goes hand in hand with spelling and for years the reading lesson is interrupted for exercise in articulation, often prolonged and sometimes exhausting, but bearing fruit in the clear diction to be found in the upper classes. A large experience has enabled the Leipzig staff to issue a text book suitable for all classes which they were anxious for the Congress to adopt for universal use in the whole of Germany, but no resolution was arrived at owing to differences not so much with reference to the method as to the matter.

The After-care of the Feeble-minded.

When the child reaches the limit of school age, he is in most cases able to find some employment requiring a minimum of skill, and can in time support himself wholly or partially. Of 56 boys leaving the Leipzig school, three entered business with their father, seven became errand boys, nine workmen in factories, four carpenters, four bookbinders, three gardeners, two bootmakers, two cigar makers, two blacksmiths, two painters, one a French polisher, one a butcher, one a baker, one an engraver, one a metal worker, one a fitter, one a brush-maker, one a barber, five were without regular work, three owing to physical weakness as well as mental defect, one on account of epilepsy and one imbecile. There is no information as to the remaining five. Of 32 girls 12 were able to help in the homes and shops of their parents, nine became work girls, four servants, one a nursemaid, one a caretaker, three were unable to work, and there remained two of whom nothing was known. These numbers bear out general statistics offered to the Congress in which 17 to 20 per cent. of all who enter may be regarded as failures. The Congress recommended that those children who turn out to be beyond the scope of the special day school should be transferred at the proper time to institutions of which however there are at present very few, and all either private or belonging to religious communities. The advantage of an institution is that the child becomes accustomed to a secluded life at an early age, and does not feel the restraint irksome at the moment when ordinarily he would be leaving school. He is able, without having to re-accustom himself to new conditions, to avail himself of the advantages which such an

institution frequently offers—a permanent home under capable and sympathetic supervision with activity suited to his strength and power and a life spared from dangerous influences. The community gains by the removal from its midst of an element which may possess all the potentialities of social evil. If he enters as a child, the transition is gradual; there is no apparent break, no appeal to the poor law, as repulsive to a German as to an Englishman, and there is none of the dread of an imbecile ward.

One of the most notable and most recent of these foundations is the Institution at Ursberg in Mindenthal where the Congress met on April 12th. The colony is managed by the Sisters of the Congregation of St. John under the Reverend Superior Dominicus Ringeisen. Founded in 1884 on the site of an ancient monastery, it began work with 34 feeble-minded and cretin inmates. With the expansion of the work, buildings and land have been added and new works completed until at the present time there are 752 mentally defectives, 111 blind, 81 deaf mutes, 145 epileptics. On admission the applicant is enjoined to remain in the Institution for the rest of his days and it is very seldom that an inmate even so much as desires to leave.

For the organisation of this enormous colony of 1,100 abnormal inhabitants, a staff of 453 workers is required, composed entirely of sisters. At the head is the Mother Superior, with thirty sisters, each in charge of a department. In every department there are at least eight assistants. The supply of workers is maintained by a training college which forms part of the colony, where the future sisters, Kandidatinnen, are brought up to the work in which they will afterwards participate, the courses being arranged in three divisions: educational, musical, and industrial.

The colony is self-contained, and provides for its own needs by its own industry. Each branch of the work is managed by a sister and her co-workers and the inmates afford whatever help they can. Among the many avenues of employment are the flour mill, the saw mill, the bakery, the slaughter house, brewery, carpenter's shop, basket and brush shops, weaving shed, chair-caning room, laundry, sewing rooms, cattle sheds, stables, field labour, gardening and heating of the buildings.

The schools provide for the pupils in training and for the defective, blind and deaf children. The defective children include the lowest types, lacking almost any sign of human intelligence. These are kept apart in day rooms and their lives are made as tolerable as possible. The remainder, though capable of instruction, are children who would be considered too difficult for the ordinary special day school and would probably never help towards their own maintenance if left to themselves. They are arranged in eight classes, according to capacity and progress rather than to age. The lower grades are capable of very little in the way of response or of discipline, many of them being undersized and feeble in appearance. Yet some improvement is to be discerned from class to class, and in the upper grades considerable advance has been made, so that however slender the

intellectual attainments may be, the children have learnt to obey. In this way, they are gradually accustomed to the discipline of labour and are led by gentle paths to a useful life where their whole work is to good purpose.

It is an experience which can never be forgotten to witness the energy and sympathy and the good-natured forbearance of the sisters in the management of their afflicted charges. A sister responsible for the saw mill, taking with her own hands no unequal share of the labour; another ordering the brewery with the trained skill of a scientist; a third escorting a company of epileptics from the meadows; a fourth keeping her stud of horses to the envy of many another stable; these are some of the fields which the Sisters of St. John have conquered and often with their own lives, not for themselves indeed, but that the afflicted may find solace through labour in quiet and in peace, far and free from danger.

The organisation and maintenance of the colony are wholly voluntary both as to support and service. Though the State may go far to solve the problem of its feeble-minded, even to endowing colonies such as Ursberg, it may yet feel grateful when voluntary effort steps in, for it is doubtful whether public money alone could ever command the self-sacrifice which such an undertaking demands.

A. EICHHOLZ.

June 17th, 1901.

APPENDIX I.

Summary of Agenda of the Congress.

1. The Reading Book in Defective Schools.—Herr Ehrig, Leipzig; Herr Kielhorn, Brunswick

2. Manual Training for Boys.—Herr Basedow, Hanover.

3. Statistics.—Herr Winterman, Bremen.

4. The Pedagogical and Economic Aspects of the Special School.—H Hanke, Görlitz.

5. Medical Aspects of Feeble-mindedness.—Dr. Muller, Augsburg; essor Stumpf, Würzburg.

6. Resolutions of the Congress.—Herr Kielhorn, Brunswick

APPENDIX II.

Table of German Defective Schools (Hilfsschulen).

No.	Name of Town.	Number of Classes.	Boys.	Girls.	Number of Children returned to Ordinary School in last Three Years.	Number of Hours of Manual Work.		Percentage of Children able to earn after School Age.
						Boys.	Girls.	
1	Aix-la-Chapelle	6	94	94	4	—	4	95
2	Altona	6	99	49	19	3	6	75
3	Apolda	2	20	20	42	2	3	87½
4	Barmen	4	128	103	2	2	2	75
5	Bernburg	1	16	4	—	?	?	—
6	Bonn	3	25	35	1	2	2	50
7	Breslau I.	3	30	22	—	—	2	80
8	Breslau II.	3	36	24	3	—	2	90
9	Breslau III.	2	22	16	—	—	2	7
10	Breslau IV.	2	27	20	4	—	2	100
11	Breslau V.	3	31	21	8	—	2	60
12	Breslau VI.	2	22	20	—	—	2	100
13	Breslau VII.	2	22	21	—	—	2	100
14	Bremen	5	59	51	1	4	4	75
15	Bremerhaven	2	17	14	—	4	4	100
16	Brandenburg	2	17	10	—	4	4	?
17	Braunschweig	9	124	81	1	4	4	80
18	Bromberg	2	28	23	—	2/2	2/2	—
19	Cassel	6	71	38	—	4	4	?
20	Charlottenburg I.	4	50	30	6	3	3	76
21	Charlottenburg II.	5	56	28	2	3	3	100
22	Chemnitz	6	73	54	26	—	2	?
23	Cottbus	3	28	26	1	4	4	83½
24	Darmstadt	3	43	25	—	2	4	—
25	Dessau	1	7	13	—	?	?	—
26	Dortmund	2	25	16	14	—	2	80
27	Dulsden I.	6	65	55	—	4	4	78½
28	Dresden-Löbtau	1	29	1	—	—	—	—
29	Düsseldorf	7	108	92	2	—	3	96
30	Eisenach	2	12	11	4	2	4	80
31	Elberfeld	6	87	74	3	2	4	92
32	Erfurt	5	49	32	12	4	4	82
33	Essen a.d. Ruhr I.	3	30	43	—	2	4	12
34	Essen a.d. Ruhr II.	3	40	36	2	2	4	88·8
35	Freiberg	2	45	39	11	—	2	100
36	Frankfurt a.M.	7	88	65	12	4	4	?
37	Fürth	1	11	10	—	2	2	—
38	Gera Reuss	3	36	29	—	4	4	75
39	Giessen	?	6	5	—	—	—	—
40	Glauchau	?	52	21	?	—	—	—
41	Görlitz	3	21	25	36	4	4	54
42	Gotha	3	37	43	—	4	4	75
43	Göttingen	2	23	13	13	—	2	85·5
44	Grimma i. S.	1	4	4	2	—	—	—
45	Hagen i. W.	1	18	7	—	—	—	—
46	Hamburg I.	4	51	29	4	—	2	100
47	Hamburg II.	4	85	—	1	—	—	50
48	Hamburg III.	6	141	—	3	—	—	97
49	Hamburg IV.	5	—	106	2	—	1	77
50	Hamburg V.	4	—	92	11	—	3½	85
51	Hamburg - Eimsbüttel.	3	37	18	—	—	2	—

APPENDIX II.—*continued.*

No.	Name of Town.	Number of Classes.	Boys.	Girls.	Number of Children returned to Ordinary School in last Three Years.	Number of Hours of Manual Work. Boys.	Number of Hours of Manual Work. Girls.	Percentage of Children able to earn after School Age.
52	Hanau	1	16	13	4	—	2	—
53	Halle a.S.	5	68	54	31	2	2	?
54	Halberstadt	2	46	24	5	4	2	80
55	Hanover I.	6	78	60	—	2	4	—
56	Hanover II.	3	40	35	—	2	6	—
57	Jena	5	31	11	4	4	4	40
58	Kaiserslautern	1	13	13	10	2	2	30
59	Kamenz*	—	—	—	—	—	—	—
60	Karlsruhe	3	36	37	1	—	—	50
61	Königsberg I.	4	28	18	9	4	4	10
62	Königsberg II.	4	34	26	3	4	4	50
63	Königshütte	2	21	28	19	—	—	100
64	Köln (Cologne)	12	180	164	15	2	4	85¼
65	Krefeld	4	67	48	8	—	2	51
66	Leipzig I.	14	108	86	1	6	6	90
67	Leipzig II.	3	32	11	—	4	4	?
68	Leipzig III.	2	22	11	—	6	6	—
69	Lüneburg	1	9	8	39	2	4	—
70	Linden	2	22	27	4	—	2	—
71	Lübeck	6	64	48	—	4	6	80
72	Ludwigshafen	1	12	15	11	2	2	80
73	Magdeburg	10	135	117	46	4	4	60
74	Mayence	3	41	32	7	2	3	65
75	Meiningen	2	5	14	—	—	2	—
76	Mülhausen (Alsace).	2	25	25	77	—	3	88
77	Mülhausen (Thüringen).	1	17	7	—	2	4	—
78	Netzschkau	2	25	18	—	2	3	100
79	Nordhausen	2	20	18	4	4	4	90
80	Nüremberg	6	71	64	4	2	2	56
81	Ölsnitz	2	—	—	—	—	—	—
82	Osnabrück	2	22	17	—	4	4	—
83	Oschatz	1	9	7	—	—	4	100
84	Pforzheim	1	20	12	—	—	4	100
85	Pirmasens	1	12	16	—	—	2	—
86	Plauen	6	61	56	2	2	2	?
87	Posen	3	35	29	—	2	2	—
88	Reichenbach	2	22	23	28	—	—	—
89	Schwelm	1	17	14	—	2	2	—
90	Strassburg	3	40	23	6	3	3	71·5
91	Stettin	2	14	27	—	—	2½	80
92	Stolp	1	11	9	—	1	1	—
93	Steglitz	1	19	10	1	2 in summer. 4 in winter.	4	75
94	Stuttgart	1	7	7	3	2	2	50
95	Weimar	1	12	10	6	2	2	60
96	Witten†	1	13	12	—	—	—	—
97	Wilmersdorf	1	14	6	—	4	4	—
98	Worms	1	21	13	—	2	2	—
99	Zittau	1	14	8	1	2	4	80
100	Zwickau	4	56	34	1	2	2	90

* Auxiliary classes attached to ordinary school.
† The school has only been recently opened.

ON THE EDUCATION OF NEGLECTED CHILDREN IN GERMANY.*

Child-Crime and its Prevention.—The opinion is more and more gaining ground that the most effective means of combating crime is not in subjecting children to treatment as criminals. More and more it is recognised that the real question is not how to improve youthful criminals after they have got within the meshes of the law, but to prevent them from becoming criminals. How little can be accomplished by the former method is shown by the increasing juvenile criminality in Germany.

According to the official Criminal Statistics for 1896,† in the German Empire in the year 1882, 30,697, and in the year 1896, 43,962, "young persons"—*i.e.*, between twelve and eighteen years—were punished for crimes and offences against the laws of the Empire (all minor offences are excepted). This means an increase of 43.2 per cent., and in relation to population an increase of 22 per cent. Crimes by adults increased during the same period only 34.1 per cent., or 16 per cent. relatively to population. A very considerable part of this increase is in convictions for dangerous injuries to the person (112.5 per cent.), for injuries to property (48 per cent.), and for using compulsion and threats (about 300 per cent.).

Neglect and the State.—The new law, which came into force in Germany on January 1st, 1900, as also the corresponding Land Laws, were intended to effect a change as to this class of crime and to adopt, to some extent, new methods. It was assumed that the right of parents to educate their children was subordinate to the right of the State to prevent children being ruined through neglect. If through want of proper education, it was said, the number of criminals increases, the community is the sufferer. On this ground, and as the guardian of public morals, the State possessed a right and an interest in concerning itself with education. The interference on the part of the State in the education of minors is no longer regarded as a repressive, but as a preventive, measure. In the preparation of the law special and repeated reference was made to the experience acquired in England, where the State and private benevolence have taken in hand the education of juveniles with good results.

The Prussian law of July 2nd, 1900, which came into force on

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* Reprinted by permission of the Society of Comparative Legislation from the *Journal of the Society of Comparative Legislation*, New Series, No. VII., June, 1901.

† See "Statistik des Deutschen Reiches," vol. xcv. i., p. 28.

April 1st, 1901, for the "guardianship education" of minors (*Fürsorge-Erziehung Minderjähriger*) is a part of the legislation regarding the education of neglected children. In order to correctly understand and appreciate the new law, a short explanation is necessary of the previous state of the law on this subject.

Offenders under Twelve.—According to the Imperial Penal Code (sec. 55), no penal proceedings can be taken against persons who have not yet completed their twelfth year. They may be placed in a family,* or in a school or reformatory, if the judge of the Court of Ward (not the judge of criminal cases) shall have previously satisfied himself as to the commission of the offence, and declared that it is expedient to place the culprit in a family or reformatory. Persons from twelve to eighteen years of age—minors in the stricter sense of the word—can be dealt with by the judge of criminal cases. They are, however, to be released if in the commission of the offence for which they are charged they did not possess sufficient intelligence to perceive the culpability of the offence. In such a case the culprit may be either handed over to a family or sent to a school or reformatory (Penal Code, sec. 56). The State, it will be seen, interferes in education only when a punishable offence has been committed.

Operation of the Old Law.—Many of the German States have availed themselves of the provisions of sec. 55. A Prussian law of March 13th, 1878, relating to the provision for neglected children enacts that "whoever commits a punishable offence after the completion of the sixth year and before the completion of their twelfth year of age may be placed in a family, or sent to a school or reformatory, if this course is *necessary*, taking into consideration the nature of the offence, the character of the parents or other guardian of the children and the other conditions of life, in order to prevent *further* neglect."

In order that the provisions of this law might take effect, two conditions were necessary—the commission of a punishable offence and *de facto* neglect. The right of compulsory education ceased with the completion of the eighteenth year of age or with a decision putting an end to compulsory education. Children of from six to twelve years could not, if they were able to understand the culpability of the offence (and could therefore be dealt with), be sent to a reformatory school. On the other hand, children from six to twelve years, even when there was *de facto* neglect and a clear necessity of provision being made for them, could not be compulsorily educated when there was no evidence of a punishable offence committed by the child.† To neglected children who had not

* Only permissible since January 1st, 1900.

† This was the principal fault of the Prussian law. See thereon, especially, Appelius's book, "Behandlung jugendlicher Verbrecher und verwahrloster Kinder," Berlin, 1892, p. 115. Other Laws—for example, those of Hesse and Baden—went farther; they ignored the requirement that the child must have committed a punishable offence, and authorised

yet committed any punishable offence, only the provisions of the Prussian Allgemeines Landrecht of February 5th, 1794 (sec. 86, Part II., 2), applied: it allowed interference by the State with the parental right of education, against the will of the parents, but only when the parents were culpable—that is to say, when they cruelly maltreated their children, or brought them up in evil ways, or deprived them of necessary support.

Neglected Children not Criminals—Conditions of State Intervention.—The state of the law which I have described could not be regarded as satisfactory. The Code of Civil Law which came into force on January 1st, 1900, applies to such cases. First of all it leaves the above-mentioned provisions of the Penal Code unrepealed, and they still apply to all cases where the neglect of the child results in a punishable offence, the punishment for which is not inflicted owing to the tender age of the child or to its being unable to understand the culpability of the offence. The Civil Code, however, contains also provisions with regard to neglected young persons who are not criminals. It permits the public education of a child without the latter having committed a punishable offence when the father or other person acting as parent (the mother or guardian) is guilty of a neglect of education. Thus, under sec. 1666 the Court of Ward (not that of Administration) is empowered to take the necessary measures for removing the danger "if the mental or bodily well-being of the child is endangered" (not simply prejudicially affected). "Endangered" includes these cases: (*a*) where the father abuses his right to take care of the person of the child; (*b*) where he neglects the child; or (*c*) if he is guilty of dishonourable or immoral conduct. The measures which are permitted may especially, though not exclusively, consist of the child being, for the purposes of education, placed in a suitable family or in a school or reformatory. An essential condition, it will be noted, is some offence by the father or mother, if they exercise the parental authority; as, for instance, if the father should employ the child in criminal or immoral acts; if he should abuse his right of chastising in such a way as to be dangerous to the child; if he should deprive a child a few months old of its mother without sufficient grounds;* if, owing to his being imprisoned, he is not in a position to provide for the maintenance and education of his child.† The above-mentioned cases illustrate clause (*a*); illustrations of clause (*b*) will be as follows: neglect to send to school, insufficient food, clothing and bodily attention; of (*c*): alcoholism, personal violence, begging, prostitution, procuration of the father

compulsory education even in the case of the moral neglect of the child. Others again—as, for instance, those of Saxony and Wurtemburg—extended the age limit up to which the order for compulsory education should be permissible to beyond the twelfth year.

* Oberlandesgericht Stuttgart in the "Deutsche Juristen Zeitung," vol. v., p. 399.

† Kammergericht in the "Rechtsprechung der Oberlandesgerichte," vol. i., p. 286.

as regards the mother. The conduct of the father in religious or political matters is not a ground for the intervention of the Court of Ward; this has been expressly recognised by the Legislature.

If the child be under the charge of a guardian and there be reason to fear continued neglect, the judicial authority may place the the child under compulsory education (sec. 1838), even when the guardian is in no way responsible for the defective education. If in this case the care of the person of the child devolves on the father or the mother, the placing of the child under compulsory education can be effected only under sec. 1666—*i.e.*, where the parents are guilty of a neglect of education. With the consent of the father, and on his application, compulsory education is also permissible according to the Imperial law (sec. 1631).

Opposition of Person "in Loco Parentis."—After a long parliamentary contest, the principle has been established by legislation (by the *Einführungsgesetz* of the Civil Code, Art. 135) that, independently of evidence of a fault on the part of the person acting as parent, the compulsory education of the child may be ordered even against the expressed wish of such persons "if it is *necessary* in order to prevent *complete* moral ruin."

"*Guardianship Education.*"—By the law of July 2nd, 1900, mentioned above, Prussia has availed herself of this right. The object of this law, which repeals the old Prussian law of March 13, 1878, is interference on the part of the State not only, and not merely, when the child is *already neglected*, but *also when it displays evidence of neglect*. This is shown by the altered title of the law and the alteration in the wording thereof. It is no longer a "compulsory education" which is spoken of, but a "guardianship education" (*Fürsorge-Erziehung*), an expression with which the German language has been enriched through this law; not "compulsory," implying reaction against, but "guardianship," implying protection against neglect. This "guardianship education," which practically amounts in many cases to a complete separation of the child from its family, is only to be resorted to if all other available measures for obtaining a proper education fail Such other means are religious influence, schooling, the guardianship of the poor, voluntary charity and also the admonishing of the person acting as parent. By law the "guardianship education" can only be ordered in the case of such minors as have not yet completed their eighteenth year (sec. 1).

Unlike the pre-existing law of Prussia, the new law does not fix a minimum age; it thereby considerably increases the number of those persons to whom the State education may apply. It is, however, laid down that children not yet of age to go to school shall only be put under a "guardianship education" if no other measure can be found to prevent the neglect of the child.

In what Cases Permissible.—In three different cases the "guardianship education" is permissible under the law:—

(1) When the provisions of the above-mentioned sec. 1666 or

1838 of the Civil Code apply, and the "guardianship education" is necessary in order to prevent the neglect of the minor—in other words, in case of the father or other person acting as parent (except the guardian) being guilty of a fault of education. It is sufficient that a danger of neglect, whether of moral, mental, or bodily kind should exist; it is not necessary that complete neglect should exist. Examples are given above.

(2) If the minor has been guilty of a punishable offence for which, on account of his tender age, the punishment cannot be inflicted. This applies only to minors under twelve years; but the "guardianship education" must be ordered only after taking into consideration the nature of the offence, the character of the parents, and the other conditions of life, with a view to preventing further neglect of the minor; it must, in fact, be applied as under the former Prussian law, taking into account the whole facts of the case as affecting the mental and material well-being of the particular child. Cases 1 and 2 differ in this, that in the latter a punishable offence (no matter of what kind) committed by the minor and *de facto* neglect (the one does not necessarily imply the other) must exist. The new case is of particular importance, viz.—

(3) If "guardianship education" is necessary in cases other than those above mentioned "on account of inadequate educational influence of the parents or others responsible for the education or of the school, *with a view to prevent the complete moral ruin of the minor.*"

The novel feature of this Statute, and the great advance which it makes, is that there may be "guardianship education" without any fault on the part of a minor or of his parents; though, in order that this may be so, there must be degeneracy of the minor in a moral sense. This will make it possible to bring under compulsory education children who throw off or resist the control of parents and guardians, who frequent bad company against the wishes of their elders, and especially females under age who have given themselves up to professional prostitution, or who are likely to do so. The law will apply in the first instance to children of the poorer classes; but it may be here especially pointed out that also children of well-to-do and rich parents may be placed under "guardianship education," and especially from the point of view mentioned under No. 3.

In view of the far-reaching effect of this enactment I concur in the opinion of a German *savant*,* who says: "Truly it is a heavy blow which is hereby directed against the *patria potestas*, but a blow which is necessary."

How Carried Out—"Suitable Family or Institution."—The "guardianship education" will be "under official supervision and at the public expense" in a suitable family or in an educa-

* v. Calker in the "Deutsche Juristen Zeitung," vol. v., p. 56.

tional or correctional institution (sec. 2). By this clause the difference between the compulsory education provided for in the Civil Code and the "guardianship education" of the present law is defined in the first instance in so far as the latter education takes place at the public expense under the supervision of special Government departments. In both cases the question whether compulsory education or "guardianship education" is to apply is to be decided by the Court of Ward. The latter also decides as to the manner in which the child is to be provided for under compulsory education. The manner of providing for the child under "guardianship education" and the nature of the education itself are left to the discretion of the Government Board of Management. The Court decides upon request or *ex officio* that "guardianship education" is to take place; the class of persons either entitled or bound to make such requests (everybody is entitled to give notice) is defined by sec. 4. If the parents and the legal representative of the minor can be heard without considerable difficulty, they should be heard, and the director or teacher of the school at which the minor in question attends *must* be heard before the Court comes to a decision. There is a right of appeal against the decision ordering "guardianship education" (sec. 4). Minors may be provided for in various ways, either in a suitable family or in an educational or correctional establishment. The Legislature has deliberately declined to determine when education in a family and when education in an institution is to be made use of. In each separate case there is to be a decision according to the peculiarities of the pupil, the kind and the causes of his or her degeneracy and the possibility of finding suitable families.* Neither does the Legislature define whether and when a family is "suitable"; it only insists that "the pupil must be accommodated in a family of his or her own persuasion for the time at least during which he or she is liable to attend school" (sec. 9). As to this matter, rules have been drawn up by the administrative authority. The family "shall offer guarantees for a serious religious and moral education"; it must have a well-regulated and sufficiently large home. Families living in the country or in small towns, where the pupils may have an opportunity of occupying themselves with agricultural and garden work, are to be especially preferred. Families living in large towns or densely populated industrial districts are to be avoided as far as possible. The family should not live too near the present place of abode of the pupil, and not more than one pupil should be accommodated in one family. The "guardianship education" conducted in the pupil's own family may be allowed only subject to the permission being revocable (sec. 10), and it shall only be ordered if the conditions which caused degeneracy have been removed. For every pupil accommodated in a family a "curator" is appointed to watch over his or her education and maintenance (sec. 11). This

* Compare in this connection Aschrott, "Die Zwangserziehung Minderjähriger" (J. Guttentag: Verlagsbuchhandlung, Berlin, 1900), p. 41.

office, which is honorary, may be filled by women; for children under twelve years of age and for female pupils women are to be preferred as curators. As to education in institutions, the pupil "as far as possible" is to be accommodated in an institution of his or her own persuasion. In no case may pupils be placed in workhouses or country almshouses. They may be placed in institutions for the sick, infirm, lunatic, deaf and dumb, or blind only so long as may be required by their physical or mental condition (sec. 10). Such institutions must offer opportunities for occupying the pupils out of school hours (the course of instruction to correspond to that of the primary schools) with work in the field, garden, and house. They should be arranged to accommodate from one hundred to one hundred and fifty pupils, and separation of the sexes must be observed. The education in institutions, however, shall continue so long as is absolutely necessary for making the pupil used to good order and discipline, and for strengthening him physically and mentally. When this result has been obtained, the pupil is, according to the rules of the administration, to be placed in a family for his or her education—with the reservation that he or she will be sent back to the institution if he or she should not behave in a proper manner.

Termination of "Guardianship Education."—"Guardianship education" ends when the pupil comes of age (sec. 13)—*i.e.*, after the completion of twenty-one years. It may, however, be terminated sooner by a decision of the administrative authority on his own initiative or upon demand, if the purpose of the "guardianship education" has been obtained or the purpose in view has otherwise been secured (sec. 13)—*i.e.*, if the pupil is under absolutely safe conditions, which make a relapse into degeneracy, so to say, impossible. For this purpose it is stipulated by the administrative authorities that before completion of the time during which the pupil is liable to attend school, a place of service or an apprenticeship with trustworthy and experienced persons shall be provided. The situation must be suitable to his capabilities and conditions of life and, if possible, in accordance with his inclinations. The termination of the "guardianship education" before its due course can take place under reserve of revocation; in such a case the condition will apply that the minor submits to the supervision ordered by the administrative authority.

Expenses and Accommodation.—It is not possible to explain here in detail the conditions as to expenses and the questions as to authorities on whom it devolves to find accommodation for minors. The following remarks may be sufficient: In the first instance the provincial associations (*Provincialverbände*) are under the obligation of establishing educational or correctional institutions. The principal expenses for maintenance and education, and for providing for discharged pupils, are to be borne by the communal associations (*Kommunalverbände*); the Government contributes two-thirds of these expenses. The communal associations

have the right to recover from the pupils, or the persons liable to maintain the same. The law (sec. 5) provides further for a "provisional disposal of the minor," if danger is to be feared. In these cases also the Court of Ward decides on the matter. Finally, there is a new penalty clause with the object of securing the carrying out of the "guardianship education." This clause threatens—independently of unlawful deliverance of prisoners punishable by Imperial law (Penal Code, sec. 120) and of kidnapping (Penal Code sec. 235)—with imprisonment up to two years, with a fine up to one thousand marks, or with any one of these penalties, the person withdrawing any minor respecting whom legal proceedings have been commenced in order to bring the same under "guardianship education," or who has been ordered to undergo "guardianship education," from such said proceedings or such "guardianship education," or inducing the same to withdraw from such process or such "provident education" or intentionally assisting him or her in doing so. The attempt also is punishable. Self-withdrawal, on the other hand, goes without punishment. The law leaves open the question whether foreigners can be subjected to "guardianship education." The question may be answered in the affirmative in case a foreigner according to the laws of his country requires the care of a guardian and the foreign State, upon request of the German Court does not undertake such duty. This is a corollary from the *Einführungsgesetz* of the Civil Code, Art. 23.

The Aim of the Legislation—The Moral Training of the Young.—From this short sketch it appears that the leading idea of the new law is to attempt to prevent the demoralisation of youth by a thorough dissemination of moral principles. The law leaves free play to the activity of guardianship and educational associations and to charity which seeks to act, not so much by giving monetary assistance, as by the force of moral example and restraint. The administration of this law in the manner intended by the Legislature will be the best answer to these words lately uttered by a high German Government official: "The law which makes the judge of the Court of Ward the custodian of youthful persons contrary even to the wishes of their parents implies a terrible accusation against society."

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[Introductory Letter to Volume 9 of the Series.]

To Sir G. W. KEKEWICH, K.C.B.,

Secretary of the Board of Education.

SIR,

I HAVE the honour to present to you the accompanying volume of Special Reports on Education in Germany.

The reports deal with recent changes in secondary education for boys in Prussia; with primary education in Prussia and Saxony; with school gardens in Germany; with the German higher schools for girls, and with certain contrasts between secondary education for girls in Germany and in England; with the continuation schools in Berlin; with the growth of the Technical High Schools; with recent developments of higher commercial education; with the methods of measuring mental fatigue which have been adopted by some German students of education; and with the education of feeble-minded children and the care of neglected children in Germany.

I desire to take this opportunity of acknowledging the courtesy with which the various Governments concerned have permitted English students to visit schools and colleges under their jurisdiction, and of thanking the writers of the different papers, and not least, Dr. Bertram, for many years Stadtschulrat of Berlin, for his account of the Continuation Schools in that city.

It should be added that the writers of the various papers included in this volume are alone responsible for the opinions which they express.

I have the honour to be, Sir,

Your obedient Servant,

MICHAEL E. SADLER,

Director of Special Inquiries and Reports.

December, 1901.

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IN
GERMANY AND ELSEWHERE

THE UNREST IN SECONDARY EDUCATION. IN GERMANY AND ELSEWHERE.

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INTRODUCTORY NOTE.

CHAPTER I.

INTRODUCTION.—The cross-currents in educational opinion at the present time. Fairly general agreement that England needs much better education and much more education than is provided at present. Marked absence of agreement as to what would constitute such a "better education." Divergence of opinion (1) as to the aims which should permeate a course of education preparatory to one of the many forms of business life, and (2) as to the different kinds of commercial education necessary for different kinds of business and for different grades in the business hierarchy.

Increasing prominence of educational questions all over the world. Educational unrest everywhere. The educational problem greatly differs in different countries according (1) to varying power of tradition; (2) to differences in the national ideal of education; some nations having a far more complex task for which to prepare the rising generation than others have; (3) to the varying powers of direct control and interference entrusted to the State. The problem of educational reform in England more intricate than elsewhere. Historical and social reasons for this.

The points in which England has dropped behind her rivals in the educational race. Certain advantages which we have retained through not following Continental fashions in education. Changes in many school studies and in the importance to be assigned to the intellectual elements in education are being forced upon us by the action of other nations. Any such change brings with it the risk of losing many traditional elements of great educational value. But reform necessary and urgently required. The full benefit of a large educational reform not completely felt for nearly thirty years. What England has to do is to readjust her educational system, so as not only to meet present conditions in international life, but to equip Englishmen for what is likely to be the greater strain of competition twenty or thirty years hence.

CHAPTER II.

SOME CAUSES OF THE PRESENT UNCERTAINTY IN REGARD TO EDUCATIONAL QUESTIONS.—Closer study of the science and art of education, though it has led to improvements in methods of teaching and in the hygiene of school life, has revealed more clearly than ever the fact that certain fundamental aims (about which there is the utmost divergence of opinion) really govern all educational effort, and even determine in some measure our choice of methods and what is most appropriate in the conditions of school work and discipline. Some of these underlying questions stated. Their extreme complexity and difficulty. For example, what kind of "life" and what form of social order should schools seek, or be required, to prepare different sorts of children and young people for?

Social ideals are implicit in educational controversy. Hence the heat so often generated in discussions about educational arrangements. At times like the present, when economic and other conditions are rapidly changing, people interested in educational reform find it more difficult than ever to put their aspirations into words, and are often hampered by the habit of

using forms of argument which refer to bygone conditions, and no longer fit their real sympathies. But in spite of the difficulty of finding exact expression for educational ideals, the latter are still (possibly as much as ever) in conflict, and the struggle between them, though inarticulate, is none the less severe.

A national system of education involves, implicitly or explicitly, a definite theory as to the right ordering of national life. The establishment of educational unity presupposes general agreement as to national aims, and as to the best form of social organisation. Where two ideals of national organisation and of social welfare are in conflict, and those in sympathy with the one ideal are fairly well balanced by those in sympathy with the other, there tends to be an educational deadlock so far as systematic unification is concerned.

But the State cannot cut the knot by severing its connection with every kind of education. It is committed, and necessarily committed, to bearing part in educational work, because the latter touches essential matters of national welfare, to which the State cannot be indifferent.

The difficulty of educational problems is increased by the fact that "education" is an ambiguous term, signifying various kinds of power which can be applied in contrary directions, and made to produce opposite results. This conflict of educational aims illustrated by the controversy as to rural education.

Again, we cannot simplify the problem by cutting up national education into separate compartments, and dealing with each compartment quite independently. The welfare of each grade of national education depends, directly or indirectly, on the welfare of the rest, and the welfare of the whole system of school and college training depends primarily and continuously on the aims and tone of home life. Yet what may appear at first sight to be the separate fragments of a national system of education are sometimes portions of two quite distinct systems of education, co-existing in the same country, but embodying very different traditions and many different aims. This can be seen in France and in England.

Comparative statistics of educational expenditure are generally incomplete and often misleading, because the grades of education are somewhat differently classified in different countries; because the sources of educational income are very various, and not always completely enumerated; because under the one word "education" are lumped conflicting tendencies and intentionally opposite results; and because there are always doubts as to what kinds of expenditure "national education" should be rightly held to include. No mere school system, however elaborately organised, is really co-extensive with what is meant by national education. But in statistics the two are frequently treated as identical.

Different nations attach special value to different results of secondary education. The German, the American, the French, and the English standpoint summarised. The English and American tendency is to lay much less exclusive stress on the intellectual discipline imparted by school training than is usual with the French and the Germans. The persistence of the English view that education ought to be more concerned with physical and moral training than with intellectual. All three aspects of education must constantly be taken into account together. But it is a condition précedent to all effective education that we should know what we are aiming at, and what kind of character and aptitude we want to produce. The Germans and Americans are, on the whole, very much clearer than the English as to the social aims of education. We oscillate between one theory and another, shrinking from either extreme, but apt to fall into tepid compromise, which misses much that is good in each alternative. This half-heartedness seems to be partly due to a right preference for moderate measures, partly to an instinctive feeling that the best solution of all social and ethical problems involves some union and harmony of apparently opposite truths, partly to an inner deadlock of conflicting social ideals. Its effects are specially noticeable in the sphere of education.

Our hesitation is also due to a just sense of the complexity of the nfluences which really constitute "education." Educational thought all

over the world is taking much more account of social environment in its analysis of the functions of schools in national life. Hence there is much more sympathy with the customary English view of education. But "social environment" includes not merely material conditions of domicile, food, clothing, etc., but spiritual, moral, and intellectual surroundings, and the power of tradition.

Each nation (or, when a people comprises very different types of temperament, each great element in a nation) seems to have woven round itself something like a web of tradition. This is the essential part of national education. An alien system of schools may cut and injure it. Hence, when a nation feels itself in danger of succumbing too readily to foreign influences, or to influences which would weaken what it instinctively feels to be an essential part of its own self-discipline, it readjusts its system of education, often laying special stress on those kinds of training which will fortify it against its special forms of weakness. This national development of education is specially characteristic of the present time, because the extraordinary increase in the number and variety of cheap means of communication has made international and cosmopolitan influences stronger than they ever were before. These influences necessarily affect education. Attempts are made to balance or counteract them by emphasising the national elements in education.

But education has not only to concern itself with environment. Its work is complicated by differences in inherited power. But in any case the development of this or that out of many inherited aptitudes, and the degree of encouragement given to particular kinds of ability, depend in large measure on environment—if the latter word be used in its widest sense.

In consequence of the complexity of educational problems, some people seem inclined to give up all hopes of comprehensive improvement, and to argue that we should at all costs keep whatever we have got of tested excellence in education, jealously guarding it from outside interference, preserving it rather than trying to extend it, disregarding apparent waste in the process, provided that a few first-rate minds are produced by it. This view finds increasing support among those who believe that the tendency of great systems of state-organised education is to promote the interests of the average boy rather than to develop and encourage exceptional ability. But so closely intertwined are the various parts of national life and education that it is impossible to keep any section really ntact from new and disintegrating influences. Mere exclusiveness in education is not a practicable remedy.

Therefore we are compelled to face the question what we want our various grades of schools to accomplish, and what, with a view to fulfilling their part of the common task, secondary schools ought to teach. Some of the various and conflicting opinions which have been advanced on this subject. They indicate deep-seated unrest, and must be regarded as danger signals. Little likelihood of any sudden or complete break in the older educational tradition. Much latent wisdom in many courses of discipline and methods of teaching which may be momentarily unpopular. But there seems to be a growing dislike of many of the old traditions. The discussion tends more and more to turn on the effect of education on conduct and character. This raises ethical considerations as well as intellectual. English schools have paid more attention to the first, Continental schools to the latter. Each has much to learn from the other in seeking the proper mean.

CHAPTER III.

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In Germany, a greater love of abstract knowledge than in England. A fundamental national difference. Difficulty of producing any rapid change. Yet the necessity for strengthening the intellectual side both of our education and of other departments of our national life.

Unrest in German secondary education. Its causes. The problems especially under discussion. (1) Relation between primary and secondary education. (2) The future of classical studies in secondary schools. (3) Secondary schools and preparation for the duties of life. (4) The danger of an "academic proletariat." (5) The effect of secondary education on character. (6) The need for more freedom of educational experiment. (7) The Frankfurt Curricula, and the postponement of the beginnings of Latin teaching.

Summary of the chief features of the present organisation of Prussian Secondary Schools. (*a*) The various types of school. (*b*) The curricula. (*c*) Linguistic discipline. (*d*) Methods of teaching. (*e*) Study of modern languages. (*f*) The intellectual qualifications of the teachers. (*g*) The primacy of the Gymnasien; its historical developments; the recent changes. (*h*) State control: stages of its growth; the Abschluss-Prüfung: summary of "privileges."

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"Education is one of the greatest and hardest tasks which it lies on each generation of human society to fulfil. So great, so difficult, so full of unexplored and unknown conditions, and opposite and apparently contradictory requirements, that human thought and wisdom are not wide enough to take in the whole field it presents to them, they stand perplexed and baffled before many of its important problems. . . . . We come more and more to see how in all its parts it must be a combination of authority and liberty; how essential it is that, with discipline and control, there should also be frank confidence and trust; how teacher and scholar act and react on one another; how much the scholar has to give and teach; how greatly he must be induced to contribute to his own education, if it is to be a successful one. . . . . Education only fulfils half its office, it works with a maimed and distorted idea, unless it deals with character as well as with intellect; unless, again, it opens and enlightens the mind as well as directs, and purifies, and fortifies the will."—DEAN CHURCH. *Pascal and Other Sermons*, pp. 217–218.

THE UNREST IN SECONDARY EDUCATION IN GERMANY AND ELSEWHERE.

Introductory Note.

In the Autumn of 1900, the Board of Education charged me with the duty of visiting the Paris Exhibition with a view to preparing a report on its educational section. A study of the Exhibition convinced me that it would be misleading to treat the section specifically assigned to "Education," as if it were a separate thing by itself. The far-reaching significance of much that was shown in the educational section only became apparent when the industrial and other departments were studied. It is natural that this should have been so, because education is not a thing by itself, but one aspect of national life and one of many closely-related expressions of national energy and intention. Moreover, at Paris, the educational section was rendered seriously incomplete by the absence (never fully explained) of a German exhibit. But the results of German education were remarkably conspicuous in other parts of the Exhibition. Again, much that was of great importance to the student of educational work was shown elsewhere than in the educational section. Much was shown in the department of social economy; much in the pavilion of the Municipality of Paris; much (and that, too, of educational effort ill-represented elsewhere) in the pavilion of Catholic Missions; much in the galleries of painting and sculpture, and of historic art. Of course, the most essential parts of an educational system cannot be put into packing-cases and sent off to an exhibition. But it is surprising how much can be done by means of such an exhibition (especially if it is interpreted to visitors by men who are thoroughly competent to explain, and to comment on, what is shown), to enable a student to get a vivid idea of what is going on in the very different types of schools and institutions which make up a national "system of education." It would, however, be a mistake to regard the so-called "educational section" of any exhibition as being in itself a sufficient indication of the aim and spirit, or even of the methods, of the educational systems of the nations exhibiting. Nor is any one man competent to do justice to all that was shown at Paris, even by anyone country. Still less is he competent to point out the significance of the omissions in each exhibit. Yet this is in some respects the most important task of all. Instead, therefore, of myself preparing a detailed report on what was actually shown in the educational section strictly so called (where, I may say in passing, the three most interesting and comprehensive exhibits were the French, the British, and that of the United States of America), I have felt it better to prepare with the help of many others a series of volumes of Special Reports dealing in succession with those branches of educational effort which were most conspicuously important at the Paris Exhibition. One of those volumes deals with Primary Education, chiefly rural education, in France; another deals with aspects of education in

the United States of America; another, which is supplementary to two volumes on Colonial Education already issued in this series, deals chiefly with the education of native races; another with the teaching of domestic science; another with education in Scandinavia, Holland, Hungary, etc.; another with education in Russia and Japan; while the present volume treats of education in Germany, with special reference to the points of contrast between German education and our own. It will be noticed that not all the papers in these volumes have been written with special reference to what was shown at Paris. But those which were prepared otherwise fall conveniently into the general scheme.

Educational opinion, all over the world, is in rather a feverish state, and in the following pages I have attempted to discuss the causes of the unrest in secondary education which is noticeable in Germany, in France, and in the United States of America, as well as in England. It has not been my duty to formulate any administrative proposals, but rather to examine, as dispassionately as possible, the issues which must underlie, here and elsewhere, the sphere of administrative effort. My aim has been to set out, as fairly as I could, a statement of the difficulties which are raised at the present time by the problem of secondary education in Germany, France, and America, as well as elsewhere. Though I have not shrunk from indicating some of my own conclusions, I have tried so to put both sides of the question that every reader may form his own judgment from the facts before him, although that judgment may well differ from my own. The complexity of the problem is so great, many of the factors in it are so mysterious and incalculable, that anything like dogmatism would be wholly out of place. The questions really at issue are of a kind which specially need patient study and sympathetic investigation. And such study is none the less businesslike and practical in its ultimate results for proceeding slowly and trying to get to the bottom of things, comparing what is taking place in one country with what has taken place in another, and reviewing educational systems in the light of their historical development.

Several friends have greatly helped me by reading this paper in proof, and I wish to make grateful acknowledgment of their kindness, though by mentioning their names I do not at all mean to imply that they necessarily agree with the views which are expressed in the following pages. My thanks are especially due to the Dean of Christ Church, Mr. George Saunders, Mr. Spenser Wilkinson, Dr. R. P. Scott, Mr. P. J. Hartog, and Mr. J. A. Crawley, and to my colleagues Miss Beard, the Hon. W. N. Bruce, Mr. H. W. Orange, and Mr. A. E. Twentyman. When visiting the Paris Exhibition I learnt much, and saw many things which I might otherwise have missed, through the kindness of my friend Mr. Fabian Ware, but his absence in South Africa, where he is helping to organise the educational system of the new colonies, has prevented me from having the benefit of his criticisms on this paper.

CHAPTER I.

In what is written about education at the present time there is a curious eddy of opinion. People in general seem to believe in education more than they ever believed before. At any rate, they profess their belief in it more copiously than they used to do. On the other hand, many of those who believe most strongly in the power of education are beginning to utter almost revolutionary criticisms of the kind of teaching which schools generally provide. Thus there are bewildering cross-currents in educational opinion. Disputes about forms of educational administration are, after all, but of secondary importance. The real questions at issue are what ought schools to aim at producing, and for what kind of social order in the future ought they to prepare the rising generation. It is on these points that the controversy really turns, and the strong feeling engendered by debates on the composition and powers of various local authorities arises from an often inarticulate instinct that certain kinds of authorities are more likely than others to be in sympathy with certain tendencies in educational effort. There is a very general feeling that we need much better education, and a great deal more of it. But there is very far from being general agreement as to what such "better education" ought to consist of. On this point, indeed, divisions of opinion seem to grow deeper year by year. Educational reformers are more and more divided among themselves. And, for the time at least, whatever is of tested excellence in the older methods of education is coming rapidly into favour again.

But on one subject, at all events, there might appear, at first sight, to be a fairly general agreement. No one seems to dispute the view that, in some way or other, education has a good deal to do with success in trade. Yet, here again, when we get below the surface, we find great divergence of opinion. People who study the question are not really agreed as to the part which schools or colleges can play in preparing boys or young men for business. There is an almost infinite variety in the forms of industrial and commercial life. And in each form there are many grades in the business hierarchy, and different boys start at different points in the ladder. How many kinds of "commercial education," it is pertinently asked, will be required if it is proposed to prepare practically for all these grades and types of business life? Again, experienced business men are far from being agreed as to whether, apart from the above-mentioned differences, there is any common measure of commercial education which could be generally prescribed by way of preparation for every kind of business life. Some lay more stress than others on social qualifications, others on moral, others on physical, while nearly all regard general alertness of mind and habits of intellectual concentration and perseverance as of

much more importance than the early acquisition of fragments of commercial information. Still less is there any agreement on the more fundamental questions as to the kind of men which our schools ought to aim at turning out; whether in the long run it would increase a nation's happiness and prosperity, not to speak of its moral worth, if its schools made it their chief aim to produce keen bargainers, men with a sharp eye to their own pecuniary advantage; and whether there is at bottom, in individual character and national life, (and, therefore, in the schools which have to shape the one for the other), a necessary conflict between what is public-spirited and what is purely self-seeking.

Nevertheless, in all those countries which take, or wish to take, an active part in modern enterprise and international affairs, there has never been so deep an interest shown in education as there is to-day. All over the world, educational questions are fast coming to the front. In France, Germany, and Russia, in Norway and Sweden, in Holland and Belgium, in Austria-Hungary and Switzerland, in Canada, Australia, and New Zealand, in the United Kingdom and the United States of America, in Japan, and even in China, educational problems are demanding an ever-increasing share of national thought. In some countries the problem is much simpler than it is in others. Some nations, for good as well as for evil, are more sensitive to the claims of tradition. Some have more reason than others to be grateful to those who have represented the older educational tradition in their midst. Some nations have a tendency to fly from one extreme to another; others, to jog along in a middle way. Some are in the habit of identifying "education" with what is taught in schools, and, therefore, of regarding a tidily organised school system as necessarily the most fruitful kind of national education. Others have preserved a healthier sense of the truth that education is but one aspect of life, and, therefore, as varied and as long as life itself, with the result that some of their children get a very much better education than others, and that, in the community taken as a whole, the average of intellectual attainments is low. Some nations have a far more complex task before them than others, and, therefore, feel the need for a greater variety of schools, perpetuating great varieties of interest, temperament, and character. Some peoples are much more homogeneous than others in their national aim and in their outlook on life. The more homogeneous the ideals of a people, the more naturally homogeneous is its system of schools. Sometimes, perhaps from an instinctive distrust of its own excessive individualism, a nation has got a sort of artificial unity into its education by screwing down on itself a tightly-riveted system of State control. In such cases educational arrangements seem, at first sight to have a finality which closer inspection may show to be threatened by the accumulation of many explosive forces within. As contrasted with this, many of the educational contrivances of our own country look like a forest of safety-valves, without any

proper means of storing up the driving-power which the machinery needs. All these differences press themselves on the attention of the student of national systems of education. But at the present time he is no less struck by the fact that everywhere there is debate as to what it is that really constitutes efficiency in schools. What are really at issue are the fundamental questions of educational aim and motive, which are often taken for granted as if they had been settled for good and all. Everywhere educational opinion shows signs of almost feverish unrest. Everywhere there is a sense of impending change. Everywhere experiments are being tried in the hope of finding some better adjustment of school and college training to the needs of modern life. But in no country, not even in Ireland, is the problem so intricate as it is in England. The problem is far simpler in Wales and in Scotland than here. The traditions which help us, hamper us too. So far as her educational arrangements go, England is not "built as a city that is at unity in itself." The variety of interest, outlook, and ideals which has enriched our literature and diversified our national life embarrasses us when we come to consider the possibility of providing common schools for the convenient use of any given locality. We are united in our desire to maintain our variety; but we are far from being united in wishing to impose on ourselves any common form of intellectual or moral discipline. For centuries we English have been two nations rather than one. At all great crises in the intellectual development of Europe we have been conscious of our inner divisions, and have been strongest when we have agreed to differ. When either side has striven to impose on the other any kind of uniformity, whether in belief, or in matters (like education) which necessarily touch the nerves of belief, the result has been stubborn conflict, and either schism or compromise. Education is a process of training which, whatever we leave out of the curriculum, touches both heart and mind, and rarely leaves either as it was before. How, therefore, are we ever likely to be unanimous about education, seeing that we are divided, at heart as well as in mind, in our ideals of what is most desirable in individual character, in social organisation, and in national endeavour. These divisions, possibly racial in origin, are all the more difficult to eradicate because they are so largely unconscious. They are matters of instinct, often lying far below the reach of mere argument. Our latent divisions show themselves in the form which our educational arrangements have been compelled to take. Our school system, in its lack both of formal and of inner unity, is one expression of the lack of real intellectual unity in our national life. It is the effect of that lack of unity, and in turn yet another cause of it.

It is no accident that, compared with her rivals in the world, England is the most backward in her systematic provision of national education. Indifference and neglect, much as we have suffered from both, do not alone account for what is lacking in our national system of instruction. Individual and corporate effort have never

been lacking, and in no country has there been a longer record of disinterested liberality on behalf of schools. It is not the result of national inability to educate. On the contrary, nearly every student of education would admit that some English schools, both for boys and for girls, are the finest schools in the world. It is not the result of national incompetence to think about education in an intelligent way. On the contrary, out of the small number of men whose writings during the last four centuries have profoundly influenced ideas of education, nearly a half have been Englishmen. Other nations have hatched eggs taken from English nests. Why is it, then, that England is so backward in her systematic provision of national education? It is not because such systematic provision has never been proposed. On the contrary, ever since the Reformation each side in turn has tried from time to time to establish in England the kind of systematic organisation which it preferred. But the attempt has always failed, and has resulted either in a dual organisation or in nothing being done by the State at all. This inner conflict of ideals is probably less intense now than it used to be in the past, but it has not disappeared, though at present many people find a difficulty in giving articulate expression to what they instinctively feel on the subject. The conditions of the problem have changed, and many of the old formulas do not fit the new situation. But the instinctive divergence of choice is still there. In some cases, people may have drifted unawares into a position which is not really theirs. But, as they come to realise what the issue is on which they have to make up their minds, they will quickly take their side, even if it means changing their present moorings.

Education, at first sight, seems the simplest way of uniting a nation. But it only succeeds in uniting those who are already ripe for union. When a nation is deeply divided on fundamental questions, attempts to eradicate such divisions by plans of educational organisation tend to set up irritation rather than to encourage unity.

This, it would appear, is the situation which we have to face in England. In three points we have dropped far behind in the educational struggle. (1) We have a very insufficient provision of first-rate intellectual instruction in cheap and easily accessible secondary day-schools, and much of the intellectual work prescribed to boys at the great public schools seems out of gear with the needs of the times.* (2) We have also a very insufficient provision of the highest kinds of technical, scientific and professional training, deliberately and skilfully adjusted to the most recent needs of modern life, or to what are likely to become urgent needs within the lifetime of the rising generation. In these affairs (for example, in the professional

* In the course of the following pages I have ventured frankly to express my opinion as to certain reforms which, in my judgment, have become desirable in the great English public schools. In doing so I am well aware that I lay myself open to the charge of presumption, if not of impertinence. But I am deeply convinced that, in many of the fundamental things which lie at the base of a manly education, the best

training of teachers for secondary schools of the older English type) we seem half to pride ourselves on our not taking time by the forelock, on "letting sleeping dogs lie," on "not doing things too soon," and on not being "viewy"—expressions which are sometimes used to excuse unwillingness to look ahead, and failure to make practical provision for getting the best advantage out of a probable future. (3) In the third place (and this matters most of all), through our comparative neglect of national education for the better part of a century, we have in some respects a less enlightened public opinion to appeal to than have some of our rivals. As a nation, we are much less intelligently interested than the Germans in methods of instruction, in the choice of curricula, and in the direct application of the results of scientific study to the organisation of industry, to the development of commerce, and to the administration of public affairs.

It is true that hardly any change in French or German education has not found some one to advocate its imitation here. But, as a rule, we have been sturdily insular in our educational views, and far less imitative of the Continental countries than they have been of us. Insularity is much better than indiscriminate imitation (though one excess is apt to be followed by the other), but insularity is mischievous, when it prevents people from giving intelligent attention to the development of affairs in the world. We have lost a good deal by our excessive insularity, because we have failed to take practical heed of certain tendencies of which it would have been useful for us to have had timely knowledge.

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traditions of our great English schools are beyond comparison the most valuable things existing in secondary education anywhere in the world, and therefore that it behoves all who are conscious of grave, but remediable, defects in the work of those schools to urge the need for reform. But, in doing this, I well know that I am far from being one of those who are best qualified to speak on such a subject, and that many other students of education would probably form a very different judgment on the points at issue. Yet the position, from a national point of view, seems to me so critical, and the lack of any strong intellectual leading from the public schools so grave a loss, that I feel it right to submit a number of criticisms to the reader, in the hope that they may at least serve as a starting-point for more exhaustive inquiry. So various, however, are the conditions prevailing in different secondary schools in England, so different are the interests which may flourish side by side in a single school, and so incessant is the process of unrecorded change, that no one can confidently generalise on the whole situation. But I believe that (if many brilliant exceptions are allowed for) the public schools are not at present doing so much as might be done for the intellectual development of the ordinary boy. I should have more hesitation in saying this if I thought that the fault lay primarily or chiefly with the schoolmasters. On the contrary, the blame lies chiefly with the parents; and it is from the parents that the effective demand for reform must come. Hence the need for public discussion—a discussion among those who are at once personally under permanent obligation to the great schools, and intensely proud of them as English institutions. When the demand comes from the parents, the schools will adjust themselves to it. But the demand may come too late. In the meantime the great schools might do much to guide educational reform. Their position is so assured that they might venture to do more than they have lately done in the way of leading opinion and of embarking on many important experiments in regard to school studies. Dr. Arnold led opinion, did not wait for it.

For example, in the sphere of education we have lost some very precious years through not having remodelled our methods of modern language teaching at the time when the Germans and some other nations were introducing their important reforms in this branch of instruction. Isolated or individual warnings are not enough. The nation itself must be ready to hear, or individual warnings are unheard or unheeded. As a matter of fact, Englishmen and Englishwomen played an important part in this very movement for the improvement of modern language teaching. Many others have warned their countrymen of the significance of this new development of education abroad. But, for such warnings to be effective, the general opinion of the nation must have been worked up to a certain point of preparedness to receive and understand the warning. This state of preparedness is the result of a long process of previous training. One great reason for having, throughout the whole body of the nation, a really effective and searching system of educational discipline is that in this way, and in this way only, can there be formed a national habit of intelligent observation of the course of events, and a constant readiness to overhaul existing arrangements with a view to their being readjusted to the new conditions brought about by the advance of science.

On the other hand, we enjoy certain advantages through not having too quickly followed Continental fashions in education. So far as our best schools go, we have preserved and developed the tradition of a certain "great style" of our own, and foreigners are beginning more and more to appreciate the merits of what we have retained, though they are less blind than we are to its defects. Just as a keen sense of literary style is the characteristic and most precious tradition of French higher secondary education, so is what we know as "the public school spirit," the most characteristic thing in the corresponding part of English training. Neither the Germans nor the Americans, still less the Swiss or the Scandinavians, have any such really native and special mark in their higher secondary schools. It would be a great loss to the world if either the French or the English schools lost their characteristic excellence; but just as the French Lycée needs more of corporate life and more of the all-round physical and moral training which is got through games, personal freedom, and responsibility for discipline, so the English public school needs a much higher average of intellectual interest and great improvement in many of its methods of instruction. Each has the defects of its qualities, and might learn much from the other.

Again, we have paid much more practical attention to the place of outdoor sports and games in education than have either Germans or Frenchmen. In other words, our formula of "education" is really a much wider one than theirs, and far less intensely literary or intellectual. Connected with this is the English habit of sending large numbers of boys and girls (especially in the middle and higher ranks of society) to boarding-

schools, where the influences and interest of corporate life and the intimate companionship with others of the same generation are generally thought much more important than are the purely intellectual studies of the place.

We have never made an idol of intellectual instruction imparted in day-schools. In other words, our great educators have upheld the belief, (though we are far from having consistently lived up to all that the belief implies), that a school ought to be something higher than a knowledge factory; that what a man *is* matters a great deal more than what he *knows;* that wise action involves many vital elements besides intellectual attainment; and that education, in the true sense of the word, is an atmosphere and a discipline affecting heart and mind and body, and neglecting none of the three.

Furthermore, we have kept ourselves free from those restraints on educational developments which State control of any effective kind necessarily imposes. Our secondary and higher education has, on the whole, had very little tight-lacing to complain of, though our primary education suffered grievously from it for years, and has not yet recovered from the ill effects produced by it. We English have always believed that some of the highest kinds of learning are not necessarily printed in books, but may be embodied in institutions, and that some of the noblest combinations of intellectual and spiritual power seek to revive, inspire or create some form of corporate life. What Thring did at Uppingham; what Miss Buss did in North London; what, in a different sense, Dr. Arnold did at Rugby; what Miss Clough did at Newnham; what others still living have done for other institutions in our midst—this creative work, in which a great personality pours itself out into an institution, and inspires it with a new or with an intenser and wider life, is possible under the free conditions of educational development here and in our Colonies and in the United States of America, but is comparatively rare under the tighter organisation of the State Schools in France and of the Higher Schools in Germany. Our English higher secondary schools are in reality far less an organised system than a loosely-knit federation of free institutions, free to do very much or to do very little. Our conditions produce strongly-marked differences in tone and character among schools which really belong to exactly the same grade in national education. Thus our secondary schools (and the same thing can now be seen in parts of our primary education) naturally adjust themselves to rather subtly-differentiated preferences on the part of parents. And the fact that the differences exist in the schools tends to make the various preferences persist. Connected with this is the very strong and loyal affection felt by so large a proportion of "old boys" for so many of our secondary schools. There seems hardly anything to compare with this in the State secondary school system of France, or at the present day among the public Higher Schools in Germany. The system which raises the average level of intellectual attainment also tends to

obliterate many of the marks which would otherwise distinguish school from school, and round which the loyal recollections of "old boys" are apt to gather. In the sphere of primary education, the centralising tendencies of many local authorities (not to speak of the influences of the system of "payment by results" now abolished) long delayed the growth of that individuality among schools which is now happily showing itself in all directions.

No schoolmasters in the world lavish more time and thought and strength on the care of their pupils than the English secondary schoolmasters. On what may be called the pastoral side of their office, they are beyond rivalry. And their old pupils never think of their names without affection and gratitude. But because the English secondary schoolmaster so often lives among his pupils from morning to night, he has far less time and strength to spare for professional studies than has his Continental counterpart. He is much more the friend of his pupils, and much fresher in his sympathies with the interests of young people. But he is far less of a student; as a rule, is much less learned; and is often a hardened amateur in his method of teaching.

The general result of the freedom enjoyed by our secondary and higher education is that (whatever be its merits or defects) our system seems to be more naturally and thoroughly congenial *to the majority of the people immediately concerned in it* than are the corresponding systems in France or Germany. But whether our great schools are turning out boys of the kind of aptitude and trained intellectual interest which the present times require, is another question. It is to be feared that in far too large a number of cases our secondary schools for boys fail to make *intellectually* as much as should be made, and could be made, of the excellent material on which they have to work. In order that courage and devotion may not be wasted, we need far more alert intelligence, far more insight into the significance of social and international problems, and much more knowledge of what is really going on in the world outside that somewhat limited area of English life from which the greater part of our public-school boys are drawn. Unless this change come quickly, it is to be feared that the intellectual lead will pass from the great public schools to another type of school altogether, a transference which would involve a breach in tradition certain to be hurtful to much that is most excellent in English life. But if the intellectual side of our English public-school life is to be strengthened, the reform will involve great changes in the present disposition of many schoolmasters' time. They will have less time for games, because they will have to give more time to study and to the actual preparation of lessons. In order that the change may not injure the present excellent relations between masters and boys (relations which are quite beyond comparison the pleasantest which exist in any secondary school system in the world), there

will be need for an increase in the number of masters, for a considerable reduction in the size of many of the "forms," for much more (and often for a different kind of) instruction in modern languages, in modern literature, in history and in geography, and for a much more systematic attention to methods of teaching. What is wanted is, not "mere prattle, without practice," but practice enlightened by scientific study of the aims and methods of teaching. Clumsy, antiquated methods of instruction are far too common in our secondary schools. If our public schoolmasters once seriously take up the question how to make English methods of teaching the best in the world, it will probably be surprising how much of the old tradition will be quickly discarded as obsolete, and how much time and strength it will be found possible to save without sacrificing discipline to intellectual interest or interest to discipline.

It may be asked what need is there to make these reforms. "Are not people satisfied with what the public schools are doing? Have the public schools ever been so prosperous, or ever so eagerly sought after? Why should anything be done to alter arrangements which seem so satisfactory to all concerned?" The answer to this is that our great competitors in Germany and America have forced the pace.

The Germans have succeeded in getting a much larger proportion of their people to go through an advanced course of instruction than is the case in England. They are working up the instruments of non-classical secondary education to a high point of excellence and precision. They have managed to inculcate scientific habits of mind and a disposition towards intellectual organisation and co-operation to a degree quite unparalleled here. They have overcome, by various means, the excessive individualism which baffles efforts at timely combination. They have induced the generality of the nation to trust to the wisdom and forethought of the State, and to submit to present discipline and sacrifice in the confident hope of future gain. They have skilfully applied education as an instrument in furthering their commercial and industrial interests. Whether their type of national organisation will in the end prove to be the most enduring and the most capable of necessary self-adjustment to new needs as they arise, are important questions which certainly admit of answers not wholly favourable to recent developments. But the fact remains that our hands are forced. We cannot afford to ignore what our competitors have done, and the immense strides which they have recently made in the commercial race. We cannot shut our eyes to the extraordinary skill with which they are harnessing education in the service of business and of the other tasks of modern life. We shall find ourselves virtually compelled by their action to replace much of our old educational machinery by something which works more economically and turns out a more modern fabric. The danger is lest, in doing this, we should destroy what is of infinitely more value to the nation in the long run than would be the most successful manufacture of specialists in money-making and of experts in

the art of pushing cheap and taking wares. What is needed is to keep the best of the old tradition and to weave into it quite a modernised curriculum. But, though there will be differences of opinion as to the risks involved in any change, few will deny that searching and radical reforms and extensions are needed all through our secondary and higher education, both in their general and in their technical departments. And it should not be forgotten that it takes between twenty and thirty years to get the advantage (or to measure the real results) of any great educational change. It is only when the influence of the pupils trained under the new conditions has filtered through the whole mass of public opinion and of national life that the effect of the changes is fully perceived. There is indeed no time to be lost. We could not, even if we wished to do so, reform all our secondary education at a year's notice. Any such wholesale change would be prevented by three considerations: by the regard rightly paid to the legitimate claims of many excellent teachers whose skill is confined to the older subjects of instruction; by the uncertainty as to what should be aimed at by the different kinds of secondary schools; and by the unpreparedness of public and professional opinion to submit to all that is really involved in the classification of schools according to their intellectual and social aim, not to speak of their curriculum. But already, so to speak, the wolf is at the door. We have to face the fact that it will take us, under the best conditions, between twenty and thirty years, at a moderate computation to remodel our secondary and higher education, and to put ourselves (so far as instruction is concerned) on a level with the Germans. During that period Germany herself is not likely to be idle. We have therefore to look ahead over a period of nearly thirty years and try to judge what is likely to be the condition of the world's industry and commerce at that time, when Germany and America (not to mention other countries) have been enjoying for the whole of a generation more the results, good and bad, of their very different educational systems. For those who regard the welfare of this country as depending wholly on our retaining a predominant place in the world's commerce, this may seem a gloomy prospect. Happily the highest influence of a nation depends far more on its possessing intense spiritual and intellectual force than on its material wealth or on the supremacy of its commerce. But no Englishman would willingly see thrown away for lack of courage or of forethought the immense opportunities that are afforded to us by the present vast extension of our industry and foreign trade. Yet what is really threatened by our present backwardness and intellectual inertia is the power to exercise wisely and effectively for good those forces which Providence has placed in our hands. Never had any nation so great an opportunity; and yet how slowly we seem to grasp the use that might be made of it—alike for the bettering of social conditions at home and for the building up of a stable fabric of Imperial institutions. Were it not that the future conceals within itself so many incalculable elements, the outlook would be black indeed.

CHAPTER II.

Some Causes of the Present Uncertainty in regard to Educational Questions.

At no earlier time has so much careful thought been given to the science and art of education as during the last thirty years. This closer study has led to what at first sight is a paradoxical result. Some might expect the labour which has been lavished on the subject to have led to a final settlement of all the most important questions touching the training of the young. But this is exactly what has not taken place. The fundamental points have not been settled. Various lines of study (not only educational) have led people back, stage by stage, to the fundamentals, and there they stand at present, realising as they never did before how difficult it is to form a judgment on the underlying questions which really govern all the rest, but which are often more or less taken for granted, or slurred over, or regarded as being settled by tradition. In short, the educational researches of the last twenty years may be said to have cleared roads through a jungle of subsidiary questions, matted and tangled with tradition, back to the great fundamental issues, which can now be seen more clearly than ever before. And that the new problems, which are thus beginning to be discussed, are really fundamental is probably one reason why there has been such an extraordinary growth of public interest in education all over the world. It is true that, as to the value and nature of certain methods of teaching, most people are clearer than they were: they do not all agree by any means, but they know much more definitely wherein they differ. And much light has been thrown on the variety of things which have to be taken into account in forming a judgment about what may be called the hygiene of education. Here again people are by no means agreed, but they are much clearer as to the scope of the question, and, as a rule, much more willing to recognise the need for different solutions of the same kind of difficulty according to differences in circumstance. But both the methods of teaching, and many of the conditions under which teaching is best carried on, are really governed by the aim of the course of education of which they form a part. They are instruments to an end. On the nature of that end will necessarily depend much of their value as instruments. An English merchant or diplomatist visiting Germany to-day would not find Latin the most convenient means of communicating his ideas on public questions. Once things were otherwise, and the power of speaking Latin was much more practically useful to all European travellers than (except, perhaps, to some Roman Catholic scholars and administrators) it is to any one at the present time. Hence the dominant place of Latin in the early stages of higher education is now threatened on all sides. It has to be defended, by those who wish to retain it in its present position, by arguments very different from those in vogue in the sixteenth and early

seventeenth centuries, not to speak of the times before the Reformation and the great break-up of the European culture of the Middle Ages. How Latin should be taught, or when it should be taught, are questions which really turn on the underlying questions why Latin should be taught at all, and whether there is need or room for it in modern education. Again, even questions of school hygiene are largely dependent on the underlying aim of the course of education in question. For example, many people feel that a country place is the best seat for a school for growing boys and girls, in order that they may have purer air, more space for games, closer companionship with nature, and more freedom from the nervous strain caused by the sights and sounds of city life. But no one would propose to educate young sailors in an inland village; nor would it be possible, even if it were otherwise desirable, to remove *all* city children from their home surroundings during their school life in order to give them the benefits of an education in the country.

Thus, all over the world, wherever education is being seriously studied, the fundamental issues are being raised. At first sight they may seem simple, and only capable of one kind of solution. But, on closer analysis, they turn out to be extraordinarily difficult. Every kind of education, like every kind of manufacture, must have an aim. What, for example, does a "secondary" school aim at, as distinguished from a "public elementary" school? For what kind of life do you purpose to educate this boy or that? And are girls to be educated for the same kind of life as boys? Are you going to educate all children alike, whatever the position of their parents, and whatever their own probable occupation in later life? If the answer be Yes, how long is such a common education to extend? How much will it cost the local community or the central State? Who shall decide what the "common course" is to be? Must everyone alike contribute to the cost of it? Will you allow parents, if they so prefer, to bring up their children outside it? If so, at the parents' own expense? And what control should the State exercise over the course of studies in such outside institutions, and over the spirit and temper of their management? Above all, for what kind of social order do you propose to prepare the children? This is the most fundamental and necessary question of all, and, it must be added, exactly the question upon which the central mass of moderate people seem to have least made up their mind.

It is often said that schools should prepare boys and girls for life. People have said so for generations, but often without much effect. One thing, at any rate, is clear, that it cannot be done except at great expense—expense, that is, not merely in point of money but in point of thought, of sympathy and of personal devotion. Any true preparation of boys and girls for the moral and intellectual duties of citizenship and for the practical duties of life would involve the very best of teaching, a long course of education, costly and varied equipment, very small classes, large staffs of teachers, great variety of schools, and, above all, unsparing self-devotion on the part of parents as well as teachers. The fact is that it is easy enough to say that schools should

prepare young people for life, but it is a much more difficult thing to explain how it is to be done. But much the most difficult thing of all is to decide what the "life" is to be.

These difficulties are implicit in educational questions. The reason why the latter nearly always generate so much heat in discussion is that they involve social and moral ideals. The latter are usually in process of change, but the rate at which such change is going on varies from generation to generation, or even from decade to decade. Some people, of course, are unconscious of the process, but it is none the less actually proceeding in their minds. Few could adequately express *in words* what they are striving after, or why they are really departing from their former ideals. And at some periods it is more difficult than at others to give verbal expression to this shifting outlook, and to this change in social and moral aspirations. The spiritual movement seems to precede the intellectual analysis, and, therefore, the verbal expression, of it. But, though the matters at issue are thus in point of verbal form undefined, the reality of the conflict is there. People feel it, though they are inarticulate. The fact that we are inarticulate often makes us only the more sensitive to anything which we instinctively feel to be hostile to what we regard as a right ideal of individual or communal life. One frequent cause of irritation, and of inability to make others understand why we prefer this plan to that, is that we are often in bondage to some traditional form of words, really devised to meet circumstances now gone by. In our stumbling efforts after some new expression of our hopes and fears for national education, we cannot get out of the ruts of old thoughts. We are hampered by forms of words and by chains of argument which we have inherited from former times. We cannot think ourselves free from all that these obsolete phrases imply. Our real aims are in advance of our power of defining or expressing them. But what is vital to us are the aims, not the words. We may find our verbal arguments shattered in controversy, but we feel at heart that the attack has not touched the citadel of our thought. Something of this sort seems to be happening nearly everywhere under the guise of educational controversy. Intense feeling on educational questions is being aroused in nearly all the countries which are most exposed to the disintegrating and yet unifying influence of modern life. *Why* the feeling excited by particular proposals should be so intense is often a difficult question to answer. That any such feeling should be excited at all seems to come to some observers as a complete surprise. But of the reality and intensity of the feeling there is no question. Yet, after all, the intensity of the feeling is not to be wondered at when we realise that what is actually at stake in any great educational controversy is the ideal of individual and communal life. The struggle has gone on in varying forms for centuries, and doubtless in some shape or other is as old as the human race. The issues have been necessarily intertwined with the fortunes of certain institutions, ecclesiastical and civil. Different temperaments seem naturally to incline to different administrative solutions of the problems

raised. And, at such a time as this, the field of educational controversy often presents a spectacle of fierce confusion.

> "Neither battle I see, nor arraying, nor King in Israel,
> Only infinite jumble and mess and dislocation,
> Backed by a solemn appeal, 'For God's sake, do not stir, there!'"

In America, in Germany, and in England, the stream of social change is running like a millrace. The current is far too strong, and the volume far too great, for it to be possible to dam up the stream by barriers of educational restriction. To divert the flood into smaller and fertilising channels will require, not only a great deal of scientific and costly engineering, but a much more exact knowledge than we at present possess of the probable continuance of the present stream of change. Moreover, it will be necessary to come to some clearer agreement among ourselves as to the kinds of cultivation which it is desirable to promote, and whose business it is to be to work up to the utmost point of efficiency each department of national life, not forgetting those departments which are the most physically arduous and the least intellectually diversified. A national system of education involves, implicitly or explicitly, a definite theory of the right ordering of national life. The building up, therefore, of a stable system of national education involves either a stable condition of society and an equilibrium of social forces, or extraordinary prescience of the future and a far-seeing adjustment of means to definitely intended ends. Unfortunately the demand for educational unity does not always mean that educational unity is possible. People sometimes crave for that which facts beyond their control have placed furthest from their reach.

It may be asked why the State should not cut the knot by severing itself from all connection with education. But this would be impossible. If "education" is used in the sense of "training for the rising generation," it is unthinkable that the community should not accept, consciously or unconsciously, some part of the responsibility for the right upbringing of its future citizens. We may deplore the evils arising from governmental interference with education. We may resent bureaucratic control of so sensitive a part of national life. But we cannot, when we look into the actual facts, conceive of any modern Government feeling free to stand aside from the schools. The State is not really free to do so. Education is but one aspect of its own very existence. And therefore it is that the State is deeply committed to the task of aiding and supervising education. Some States, our own among them, have most reluctantly taken up the onerous charge. But the logic of facts has forced them further and further into the task. In England and Wales alone, the central and local authorities contribute to the various grades of education at least twelve million pounds a year. This vast machinery cannot suddenly be stopped, even if the State wished to stop it. Nor, on the other hand, can the machine be left to run on without incessant care and readjust-

ment to new needs. All the time, it is not merely costing money, but actually producing something; and the chief question at issue is whether that "something" is what the nation really needs or intended to get. No one therefore can afford to be indifferent to education, and our apparent lack of interest in the subject is a cause of astonishment to Germans and Americans, who realise that what is actually happening from day to day and even from hour to hour in the schools is of momentous consequence in one way or another to the national future. The State is compelled, practically as well as morally, to care for its schools. It cannot evade the obligation. Economic reasons alone and considerations of social order compel the State to act; and, having begun to act, it is gradually led to realise that it has taken in hand one of the most complex and insistent of duties, and that it cannot schedule out of its formula of education any of the elements necessary to the development of the physical and moral powers, as well as to the purely intellectual gifts, of the children. From point to point, it is driven forward by a rather vague but irresistible instinct that more must be done. There can be no finality in the work of education.

But here there arises another difficulty. "Education" is not a material thing like gold or ivory, that can be analysed, nor is it a service like coal-hewing, that can be positively defined. It is an ambiguous term. It is a common name for quite different kinds of power — spiritual, intellectual, physical, economic, artistic—and these different powers are developed differently and may be applied in quite contrary directions. "Education" is sometimes advocated as if all educators meant the same thing and wanted to educate children in the same direction. But, in point of fact, the word "education" has covered, and probably will always cover, quite conflicting tendencies. Some schools exist in order to give, so far as may be, every child an equal chance of "rising in the world." Other schools exist to "keep people in their place." But in a printed list of schools, there is nothing to distinguish one of these types of school from the other.

Take, for example, the question of rural education, which now is occupying much attention in many parts of the world. It is comparatively easy to say that country schools should aim at interesting children in country life. But what is meant by "country life"? Do we mean the processes and the beauties of Nature, the love and care of animals and of plants and flowers? If that is what is meant, shall we not all agree in a strong desire to foster the love of these things among young people from their earliest years? We may indeed differ in our opinions as to the fitness of the methods of instruction adopted to develop such interests, or as to the selection and preparation of teachers competent for such a task, or as to the steps which should be taken to make town as well as country children full of an open-eyed and intelligent interest in living things and in the works of nature. But, if behind the plan of special courses for village

schools there were to lurk the idea that country children should be so brought up as to be kept on the land, we should touch at once on a fundamental point of social controversy. Whether or not schools can so be used as to check whatever drift exists from rural districts into towns is a moot point. It is very doubtful whether any merely scholastic contrivance can counteract strong economic currents from one type of employment to another. Still less likely is it that any mere change in school lessons would shut out the penetrating and imponderable influences of a social movement. Agricultural populations have long memories, and, in any such townward movement as we are now watching in many parts of Europe, there are "old, unhappy, far-off things" to be reckoned with, as well as matters of wages, social outlook, a sense of constraint at home, the dulness of some kinds of village life, and curiosity to "see the world." But, on the other hand, it is unquestionable that schools can be made slacker, more sleepy, and more inefficient than they need be; and that in this way their influence, whatever it is, may be made less operative than before, with the result that some slightly larger proportion of school children may inertly take what they can get in the way of employment at home, for the good reason that many of them would be unfit to obtain anything better elsewhere. But it is evidently not to the advantage of any industry, agricultural or urban, to have stupid workpeople. If the conditions of employment occur intolerable to intelligent workmen, the solution of the difficulty must be found not in the suppression of intelligence but in a change in the conditions of the work. It seems that what is really wanted in the village schools is a far greater and more sustained effort *to make the children think.* This is not an easy task for any one to undertake, and its successful performance requires, on the part of the teacher, a remarkable combination of intellectual ability, knowledge, artistic power (for all good teaching is an artistic work), patience, moral insight, and intense sympathy with child life. The one thing which brings unfailing encouragement to any student of education is the knowledge that all over the country, unknown to fame but loved by their pupils, and trusted by all who know their work, there are teachers who are working in this spirit, often in the teeth of stupid prejudice, often without any adequate recognition, but with a devotion which is beyond praise and is indeed sustained by the highest of motives. These are the real upholders of the educational tradition. This is the influence which in the end will reform the methods of teaching in town and country schools alike.

If we allow such teachers freedom in the practice of their art; if we relieve them from the fret of needless worry and from the harassing anxieties which arise from unduly straitened means; if we place them in conditions favourable to healthy and active work; if we entrust them with sufficiently small classes; if we secure for them the leisure necessary for private study and for the fresh preparation of each lesson; if we give them access to

the books, papers, pictures, instruments, works of reference, and materials of various sorts which are needed by all who try to teach in a really living way the elements of a large number of different subjects; above all, if we make them realise that the nation appreciates the far-reaching value of their work and its almost sacred importance, then these teachers, supported by the sympathy and confidence of the parents of the children and guided by the growth and developing natures of the children themselves, will feel their way from point to point in this fascinating art of teaching; valuing tradition and yet able at need to discard it; avoiding one-sided excess or excitement, yet when necessary boldly combining extremes instead of falling into the timid evasion of difficulties; helped by theory, but always testing theory by practice; and calling into the service of their school each of the essentials of true culture—nature studies and literary interests, manual training and artistic expression, physical exercises and moral discipline, according to the different needs of their pupils and their own quick sense of the needs of the place and time. But *non omnes omnia.* Gardens and animals mean to some people what Plato and Aristotle mean to others. Either branch of study may be made a liberal education, and many people derive culture from both. But you cannot by a stroke of the pen confer on a devotee of the one the power of feeling, or imparting, a life-giving interest in the other.

More and more is the essential unity of all true education being impressed on the thoughts of those who are studying secondary and higher education. Essentially important as are the latter to any full development of national life, they cannot flourish alone. The critical years in a child's life are the earliest years. Therefore, the most indispensable part of national education is home training. That is the first condition of success. If parents fail in their duty towards their children, if they merely send them to school to be rid of them, if the spirit of home life is base or foul or selfish, very little can be done by the most elaborate provision of ordinary day schools. National education is like a cloud—

"Which moveth altogether, if it move at all."

The true basis of national culture is home-training. Next, and by rights interwoven with the home life, and almost of a piece with it, comes the primary school—the school, that is, which teaches children up to twelve. No great system of national training can flourish except on a basis of first-rate and appropriate primary education, but it is necessary to bear in mind that primary education is not confined to public elementary schools, though the latter provide by far the largest part of it, and are the avenue through which a considerable and increasing proportion of boys and girls pass on to the higher schools. But the relation between the different stages of education is reciprocal. Universities cannot flourish without first-rate secondary schools to feed them; secondary schools cannot flourish unless the boys and girls have been excellently trained during the years spent in the primary school, and primary

schools, in turn, cannot flourish unless their intellectual interests are constantly being stimulated and their intellectual standards upheld by the influences of the secondary schools and universities. From grade to grade of education there should be an unceasing circulation of influence. Impenetrable layers between grade and grade injure the welfare of the whole. Technical and professional education, in turn, base themselves on the general education provided by the primary and secondary schools, and (for a few of the most advanced students) by the universities. Moreover, under right conditions, technical and professional studies are restrained by the humane influences of general culture from undue or premature specialisation, and from selfish preoccupation in their own immediate concerns.

But in any such view of national education it is tacitly assumed that each part of the system is working towards the same end. This is by no means always the case. There may be a conflict of ideals between the public elementary schools and large numbers of the secondary schools. There may be a similar conflict between different kinds of universities, or between the universities and the higher technical schools. Such a conflict may be conscious or largely unconscious, but wherever it exists it tends to weaken the efficacy of the system as a whole. The different parts are working at cross-purposes and counteract one another. The difficulty would be much less serious if the mere fiat of the State or a mere change in the law were always sufficient to remove this conflict. But the roots of the difficulty often strike deep into the past. The trouble is often the outcome of a long history and of a traditional dissonance of ideals. In such a case there may be two virtually distinct systems of national education coexisting side by side in the same country. This phenomenon is very striking in France. But, under another form, it exists in England also. If our educational map could be coloured like a geological one, it would be seen at once that there are two quite different soils in close juxtaposition throughout our whole system of national training.

Because "education" is an ambiguous term, and is often made to cover intentionally conflicting aims, comparative statistics showing "educational expenditure" in different countries are apt to be misleading. To begin with, they are nearly always incomplete, even when they have regard only to one grade of education. In some cases the sources of income are so various as to baffle the most conscientious statistician. In other cases, some of the amounts are not included in the official summaries. For example, few foreign students are aware that the cost of providing the buildings (as distinguished from repairs and "maintenance") of our public elementary schools under voluntary management does not appear in the annual official statistics of educational expenditure. Again, the frontiers which divide one part of education from another are nearly always so disputable that the actual limits of the particular branch to which any given figures refer are as a rule by no means clearly defined. There is no sort of general understanding as to the exact meaning of quite common terms.

In England, "secondary education" has never been defined. In Switzerland, what are specifically called "Sekundar-Schulen" are practically the same as what in France are called "Écoles primaires supérieures." Certain departments of the latter are so like portions of the Écoles professionnelles that it would be difficult to say (apart from the fact that the two types of schools are under different Ministries) which belongs to the higher primary sphere and which to the sphere of technical education. Equally difficult again is it to draw the line between different grades of technical instruction, and yet it makes a great difference whether public funds are spent almost wholly on "Gewerbeschulen," or whether a large amount is concentrated on a few institutions, like the Technische Hochschule at Charlottenburg, giving technical education of the highest possible grade. Again, in some parts of Germany the term "middle school" is applied to secondary education proper, while in Prussia the middle schools are virtually higher primary schools, and entirely distinct in point of curriculum, status, and government from the higher or secondary schools. But, even if a common classification of schools could be agreed upon, and if all sources of income and expenditure could be brought into statistical account, there would remain a much more serious impediment in the way of framing comparative educational statistics. One country may pay for something called "primary education" which is intended to produce results that in another country would be regarded as reactionary and objectionable. For example, it may be conjectured that the education given in some country schools in the eastern parts of Prussia would not be welcomed in Illinois. Yet, in comparative educational statistics, this difference is necessarily ignored. To throw educational expenditures into one indiscriminating total is like lumping, in one addition sum, plus and minus quantities without having any regard to the signs that really govern the value of several constituents. It has recently appeared how difficult it is to arrive at accuracy in comparative statements of military expenditure. But military or naval expenditures are easy to define compared with expenditures on education. To add up all that a particular nation spends on what it calls "education," and to assume that the aggregate represents expenditure on progressive influences, would be almost as misleading as to add up the outlay on torpedo-boat destroyers, on an antarctic expedition, on North Sea fisheries, and on a racing yacht intended to compete for the 'America' Cup, and then to represent the aggregate as having been spent on "naval preparations."

Purely statistical inquiries into the subject of "education" are baffled by doubts as to what the term should be held to include. School systems alone do not constitute national education. On the contrary, a country may have some effective ways of disciplining and bringing up its rising generation without having any elaborate school system at all. In certain stages of human development a most stringent form of public education is

found in social convention and in customary law. In England we often hear of parents sending a boy to a boarding-school, not because they particularly wish him to learn this or that school subject, but because they want "to make a man of him." That is to say, they want him to conform himself to the current, though rather vague, idea of what an English youth of his position and prospects ought to be. This view of education, which is of venerable antiquity, rests much more on settled preferences for certain kinds of behaviour than on the desire for certain kinds of knowledge. In an extreme and savage form we can see the same kind of idea operating among those tribes which subject their boys, before the latter can take up the rights and duties of manhood, to most severe and exacting tests of courage and endurance. But, long after the disappearance of such primitive and savage discipline, the most potent force in shaping the thoughts and moulding the ideals of a community is found in the pressure of traditional opinion. So penetrating are the influences of customary thought that, while their power remains, comparatively little need is felt for the more artificial restraints imposed on young people by the discipline of schools. And everywhere, though in some countries far more than in others, this educative power of tradition still lingers, though often but a ghost of its former self. Yet, dim as it is, this is still one of the great controlling powers in national life, and often far more deeply significant of the true instincts of the nation than is the choice of studies appointed by authority to be taken in its schools. The movement for public education which began towards the end of the eighteenth century, and continued throughout the nineteenth, was in the main an attempt to fill the vacuum caused by the gradual decay of older forms of discipline. Strenuous efforts to establish some new provision of schools are sometimes due to a direct intention to excel in some form or other of international competition (industrial, commercial, or military), but they are often the result of a more or less conscious instinct that disintegrating and critical tendencies are in the air, and likely, unless counteracted, to dissolve the shell of tradition which protects the older conception of national life. The modern movement for organising primary education under the control of the State is hardly more than a hundred and twenty years old. Its origins, of course, are of far older date, but its rapid growth began when Europe was seized with the revolutionary spirit, and when in agriculture, in industry, in institutions, and in belief, the old order was challenged by new ideas. Within this educational movement, conflicting tendencies have from the first wrestled for the mastery. To some the movement has always appealed because of that side of it which is revolutionary in character and which seeks to transform the existing order of thought, and therefore of social order. But in persistent conflict with this revolutionary tendency, we can trace at every stage the influence of its strenuously conservative counterpart. The latter, instead of merely standing aloof from the movement, seeks to

alter its course from the inside, and to use the new power in such a way as to protect what can be saved of the old tradition, instead of destroying it. The actual course of the educational movement in England and elsewhere has been a zigzag. Its main course has always been in one general direction—namely, towards the liberation of the individual from various forms of external control. But the actual advance of the movement has been constantly deflected, now to this side and now to that, as the result of the incessant struggle of two conflicting forces.

In their crudest form the two views were opposed as follows. The one party, ardently desiring great social change, jumped to the belief that mere intellectual enlightenment would suffice to convince the world of the need for reform, and would itself provide the means of establishing a new and more satisfactory order of things between man and man, between the individual and Government, and between nation and nation. The other party, sceptical of such a result and (for good reasons or bad, or from a mixture of both) being profoundly attached to most of the institutions of the existing order, resisted any attempt to replace the old traditional culture by new kinds of instruction to be imparted throughout the country in elementary schools. Neither side had its way completely. Much of the old social and intellectual order was doomed to disappear. On the other hand, the moral effects of intellectual enlightenment have been a grievous disappointment to the more sanguine among educational reformers. Schools, however, were needed, and have been established everywhere, in spite of the opposition of those who objected to the expense and to the disturbance of time-honoured privileges and prejudices. On the other hand, educational reformers are beginning clearly to realise that schools are only a very small part of education; that education is not a thing by itself or a mere arrangement of codes, school rooms, and class teaching, but an aspect of life, an atmosphere and a discipline, and part of a much larger study—namely, that of the right or possible development and direction of national and individual life. In the study of education at the present time in this country, in America, in Germany, and in France, there is an evident growth of the feeling that school problems, though of course in some respects a special subject by themselves, are only seen in their true perspective when they are regarded as being in necessary and constant relation to other forms of social culture. The educational question is not a question by itself. It is part of the social question. And the social question is at bottom largely an ethical question.

Different nations, of course, lay different stress on this or the other outcome of secondary education. The German is apt to ask about a young man, "What does he know?" The American, to ask, "What can he do?" The Frenchman, to ask, "What examinations has he passed?" The Englishman's usual question is, "What sort of fellow is he?" All four, however, are tacitly referring to a current and rather vague idea prevalent

in their respective countries as to whither a prolonged course of education should have led. The German does not exclusively dwell on intellectual attainment, but he knows that a certain measure of general attainment is wont in his country to go with, or to be an index of, a completed course of approved school training, just as the Frenchman takes the evidence of certain examinations, not as being of ultimate value in themselves, but as giving a sort of shorthand indication of a number of generally-related qualifications. But the form in which the American and the English questions are so often put shows how much more habitually the English-speaking peoples prefer to lay stress on the general outcome of education rather than on its purely intellectual result, and how much more constantly they keep in mind the fact that the boy will have to prove his worth hereafter by his own success in practical life. Characteristically, however, the American's question points to a future of self-reliant and rather adventurous effort, to be spent in mastering new circumstances and in carving out a career under conditions which permit and encourage a variety of new undertakings. But the Englishman's question, without at all excluding the idea of such energetic and resourceful enterprise in some distant part of the Empire, nevertheless expresses the idea that there is a certain tradition of English life to which these young men will have in a certain measure to conform, and that their place in it will to some extent depend on their being able to fit into the established classification.

It has been the great achievement of English education to preserve, in the teeth of modern Continental ideas, the view that education is a process of physical, moral, and intellectual discipline, not only a course of training for the mind. The great English writers on education have always kept close to the facts, and, because so many facts have to be taken into account in any complete analysis of educational effort, they have done comparatively little, as compared with the French or Germans, to systematise educational theory. Consequently, they have often failed to make clear how great is the divergence between the characteristically English view of education and the Continental view. For example, Arnold and Thring are the two most famous names among the few who have attempted any detailed analysis of what we call the "tone" and "influence" of school life. The result of this comparative lack of English systematic writing on educational subjects was that, when the demand arose for theoretical writings about education, many ideas were taken over from France or Germany, without much thought as to their "latent premises" or regard to the kind of educational outlook which they really implied. In consequence, there has been in the sphere of our primary education a long struggle between rather ill-digested Continental ideas and the native English view of what schools should be and do. The issue is still far from clear, but there are many signs that we are gradually throwing off in regard to primary education many Continental preferences for extreme centralisation and uniformity,

and beginning to feel our way to a state of things in which each primary school will have a character and a corporate tradition of its own and be judged by its capacity—not simply to teach this subject or that—but to produce well-disciplined characters, open-minded intelligence in affairs, resourcefulness in emergency, independence of judgment, and adaptiveness to new social and industrial opportunities. The movement in this direction would already be much more apparent if we were not so much divided in opinion as to the sort of social and industrial conditions for which it is desirable to train the children of the great mass of the community. Germany and America seem, for the present at any rate, practically to have made up their minds. The one appears to incline to some form of Collectivism, under Imperial leadership and with strong military and naval protection. The other seems to incline more and more to vigorous individualism expressing itself in the form of political democracy, but always admitting the supreme right of the community to exercise such control as it may think fit over any form of individual or corporate activity. In certain crises, calling for strong government and resolute interference, the two extremes are not unlikely to meet. We in England oscillate between one theory and the other, shrinking (wisely, no doubt,) from the more extreme applications of each, but perilously apt to sink down into tepid compromise and to lose the benefit of both doctrines. This half-heartedness, which is the result partly of an inner deadlock of conflicting ideals, partly of a national preference for moderate measures, has affected, and is affecting, the whole of our educational system.

But our hesitation partly comes from a just sense of the extreme complexity of the influences which make up, in the true sense, national education. English writers on social subjects have often excelled by reason of their appreciation of the importance of environment, and through their perception of the interdependence of any one part of social life and effort on all the rest. Some great change in intellectual outlook or in economic welfare, which seemed at first only to affect a few, is found to have influenced indirectly a great part of the community, and to have been—

> "like a circle in the water
> Which never ceaseth to enlarge itself,
> Till by broad spreading it disperse to nought."

Consciousness of this complexity of things has often prevented sweeping changes. It has prevented many mistakes from being made, but it has also often hindered anything from being done at all.

At the present time the tendency of educational thought all over the world is to flow in the English direction. There is a general acknowledgment of the truth, which we have rather inarticulately clung to for generations, that education is not a matter of schools and colleges alone, but a plexus of influences—some traditional, some unconscious, some spiritual, some economic, some intellectual, some geographical, and comparatively few directly

didactic or pedagogical. The result is that English social institutions are being studied by foreigners and Americans with an interest never so strongly shown before, though of course at many earlier periods the influence of English social institutions has been of almost determinative importance in other branches of European thought. A further effect of the change is likely to be the growth of a new body of educational literature, less isolated in interest and less specialised in form than that which has been usual in recent times. Education, treated as part of the social question, will appeal much more strongly to the interest of English readers than do formal treatises on pedagogy. It is possible that English experience and English criticism will play in future a much more important part in the great international debate on educational questions than they have played for many generations past.

Some of the writers who most clearly realise that education is necessarily intermixed with other parts of the social question proceed to argue that, in order to attain to social unity, we should at any rate insist on educational unity—*i.e.*, on all children being compulsorily sent in early childhood to the same schools. But social unity cannot be achieved by any mechanical means; still less can it be secured by compulsory attendance at certain day schools. Varieties of schools are much more the effect than the cause of social differences. Day-schools can do little to establish social unity while the homes of the children are so different. Moreover, a child is only at a day-school for a small part of his waking hours. Potent for good as is the advice given by a trusted teacher, lasting as are the effects of a teacher's moral influence and good example, these are in most cases but of small avail when the tone of home life and the influence of companions are mischievous or corrupting. Companionships and other forms of social intercourse; what is seen or heard at home and in the streets; the influence of newspapers and other kinds of general reading; the atmosphere of daily life; the standards of conduct which are generally accepted by those among whom the children are set to work; the incalculable variety of impressions which fall on eye and ear, and colour the thoughts, and excite sympathy or aversion—these, far more than any mere instruction, form habits and impress themselves on character. Imbedded in much that is written on the social aspect of the educational question there often remain fragments of that older theory which always tended to exaggerate the influence of mere school teaching as compared with that of the more atmospheric forces of daily life.

Nevertheless the current of thought is running strongly towards a fuller realisation of the immense importance of social environment in educational work. And by "social environment" is not meant merely material conditions of actual domicile, location, food, clothing, cleanliness, and occupation (though of course all these are factors in the general result), but also spiritual, moral, and intellectual surroundings, the power of good or evil traditions, and the nature of the principles which,

whether unconsciously held or consciously adopted, help to determine conduct.

To some extent this web of controlling tradition is different for each nation. A rightly-adjusted system of education strengthens and repairs the web. An alien and unsympathetic system may cut it like a knife. This danger was strongly felt by many Welshmen at a time when the traditional culture of the Principality was threatened by the inrush of new ways of thinking and of new standards of success. The creation of a system of secondary schools on lines specially attractive to the Welsh people may possibly prove to have done much to preserve what is most characteristic in the Welsh genius for poetry and literature without unduly isolating Welsh culture from that of other parts of the United Kingdom. Wherever there is a strong instinct to preserve a national tradition from being weakened or dissolved by foreign influences, there is apt to be a marked enthusiasm for national education. It is noticeable that, in England, Puritan and Anglican (and their more modern counterparts) have each had a strong desire to express their way of thinking in some well-organised system of education, and that each in turn has made immense efforts to retain for itself the kind of protection which an appropriate and sympathetic education can provide. But neither has been able to impose its own ideals permanently on the other side, and at no period have these two elements in the nation found it possible to join in welcoming a common type of education as satisfactory to both. Various other nations, however, feel much more strongly than the English the need for some self-protective discipline as a safeguard against disintegrating foreign influences or against the weakness of extreme individualism. Conscious perhaps of their tendency to imitate foreign ways of thinking, and of their proneness to absorb foreign ideas, the Germans have spared no pains to inspire their educational system with a strong national bias. Their geographical position lays them specially open to all manner of foreign influences, as well as making them very much alive to what is going on in other countries. Moreover, they have experienced in their history so many of the ill, as well as the good, results of extreme individualism that it looks as though they had felt impelled to buckle down on themselves a form of national education which most Englishmen would feel to be a severe restraint on individual liberty.

National education thus becomes but another name for national environment. A boy whose uncle has emigrated to New Zealand or whose brother has settled in Canada or Cape Colony often realises certain great geographical facts much more vividly than a boy who has "got up" the details out of a text-book. But his personal experience needs to be deepened by systematic and scientific instruction. Rightly combined, the two are worthy to be regarded as education.

But no single nation lives its life apart from other nations. Never before have international and cosmopolitan influences been so strong as they are to-day. They affect the whole of education

as well as other departments of national life. Over against the international influences there are rising, as if in self-protection, stronger expressions of national feeling. But the two currents are really part of one great movement of thought and change.

There are signs in some directions of a tendency to exaggerate the importance of environment in education and in the formation of character. Having been comparatively neglected so long, the claims of environment to recognition in educational theory and practice may meet for a time with excessive recognition. But the differences in inherited power and in natural ability are so patent to all who have to do with young children that there is no likelihood of the importance of heredity, as distinct from environment, being permanently overlooked by educational workers. However, it must always depend in great measure on the environment in which a child grows up (using environment in its widest and least material sense) which of many inherited capacities are called into active development. The varying course of recent biological debate on this subject has its counterpart in the fluctuating tendencies of educational discussion.

So difficult is it to steer a middle way between the two false extremes which threaten every kind of educational effort, and so intricate does the whole question become under closer analysis, that some people are disposed to turn aside with a feeling of hopelessness at the almost appalling complexity of the problem. They are inclined to argue as follows: "Let us preserve, as intact as we can, what remains to us of tested educational excellence. Let us protect, at all costs, what we know to be good from schemes of reform which may work unexpected mischief. We know the virtues of classical education. Let us cling to it, instead of running the risk of spoiling it by blundering experiments. True culture, like a great school of art, is very much a matter of domestic or corporate tradition. It is incompatible with the levelling theories of political and social democracy. We cannot make the highest kinds of education generally accessible to the whole nation without destroying the leisure and reserve which are necessary to the proper development of skill and character. Very few teachers are capable of communicating the tradition. Comparatively few pupils are capable of receiving it. The process needs quiet, absence of worry, protection from the intrusive claims of practical life. It is necessarily, from a socialistic point of view, extraordinarily callous and wasteful. In order to produce one first-rate scholar it allows scores of other boys to get little good out of the school training. But it is much better for posterity that the few first-rate minds should get the fullest opportunity for their most fruitful development than that their growth should be hampered and curtailed by arrangements designed to meet the supposed needs of thousands of people of mediocre intelligence."

There is plainly a great deal of force in part of this argument

Almost the chief danger of modern education is the sacrifice of exceptional ability to the supposed interests of the commonplace. No education has ever been good without being very costly; not necessarily costly in point of the money charged for it, but very necessarily so in point of the sacrifice made for it both by pupil and by teacher. The immense extension of educational facilities has produced much that is meritorious as well as a very great deal that is insipid. But the whole tendency of publicly-organised education is to promote the interests of the average boy, not of the exceptional boy. We are often apt to overlook the fact that in the age which preceded the present development of public education, and which (on many grounds deservedly) is generally regarded as having been a time of educational darkness and destitution, a considerable proportion of the most eminent writers and inventors began life in humble circumstances.

But in a time, like the present, of rapid and disintegrating change, alike in ways of thought and in manners of life, it is impossible to preserve, as in some enclosed garden, old traditions of education intact and free from the touch of the modern spirit. Mere exclusiveness in education is not a possible remedy. The great schools exist to train up the main body of our future leaders. They cannot afford, even if they wished, to ignore the new needs of the times. They are themselves in process of rapid change. It is their function to weave the old into the new. The dead have to be left to bury their dead.

In short, whether we wish it or not, we are forced to consider the whole question of the aims of national education. We are compelled to think out, as clearly as we can, what we want to see accomplished by each part of our educational system, and also by our national education as a whole. This raises incidentally the question—What is it that the secondary schools of a modern country ought to teach?

(1) Some contend that their chief function should be to arouse an interest in intellectual things, and to start boys in the way of thinking about social and other problems, with a view to raising up a generation of men who will strenuously combine to reform what is remediable in our present social conditions. There is in France and Belgium a strong group of educational workers who wish to make the study of social questions a much more prominent feature of secondary school curricula.

(2) Others, on the contrary, protest against any change which would prematurely occupy a boy's mind with anxious questions of this kind, and introduce into school-work many debatable and controversial matters. A few go even further than this, and speak as if it were a blunder even to stimulate a boy's interest in abstract intellectual matters beyond the limits of practical necessity. "Let us not," they argue, "develop in boys' minds the disease of thought. In the present stage of inquiry in nearly all branches

of knowledge, intellectual interests lead you to no definite conclusions. Keep boys, as long as you can,

> 'Free from the sick fatigue, the languid doubt,
> Which much to have tried, in much been baffled, brings.'

Do not worry them with ideas before their time. Those who are born to be interested in ideas will get at them for themselves. Many others, who would only be miserable if they were made to think, will happily escape thinking if you let them alone."

(3) Others strongly object to the prominent place occupied by Latin in our secondary schools. They regard it as a relic of mediævalism, and as a mere survival from a bygone state of things. They complain of the uselessness of much that is taught in schools, echoing the complaint of Faust—

> "Was man nicht weiss, das eben brauchte man,
> Und was man weiss, kann man nicht brauchen."

(4) Others, again, regard the modern hunger for higher education as largely due, not to a real love of learning, but to a desire to rise in social position. They contend that it is politically dangerous to the State to produce so large an intellectual proletariat, unfit for manual work, discontented with non-literary callings, and yet far in excess of the number of persons really required to fill the learned professions.* This over-production of people with intellectual interests is often commented on in France, and a recent Socialist writer exults in it as being likely to provide large numbers of recruits for the forces of revolutionary socialism.

"As for the 'intellectuals,' everything is driving them in the direction of socialism. The enormous increase of the cultivated classes and the impossibility of satisfying the desire which intellectual cultivation excites have produced a multitude of social nondescripts, belonging to no particular rank in society, discontented with their prospects and position, hungry for appointments and anxious to find work. In no other country in the world are so many diplomas and certificates awarded as in France. Nowhere else is there such a crowd of young men hoping to get employment in the Civil Service, or as doctors, or as lawyers, or as teachers, or as journalists.

"This overproduction of 'intellectuals' has been caused by the uncertain outlook for the middle classes and by the social prestige of the so-called liberal callings, as well as by the drift of political and economic development.

"All these 'intellectuals' naturally turn to politics, because politics lead to everything. This tendency towards politics is specially noticeable in France. The majority of the men, about whom I am speaking, have been educated entirely on the classics. That is to say, they have received an education designed to prepare people for cultivated leisure, not for the tasks of modern life. This course of classical education has furnished them, not with practically useful knowledge, but with some general ideas and a large assortment of commonplaces. They are the products of a 'viewy' education, the tendencies of which conflict with the necessities of modern business. Consequently, they remain useless for practical affairs. They all drift into politics, and the movements caused by social discontent (socialism, antisemitism, and the like) find among them a large number of recruits."—H. LAGARDELLE. *Les Intellectuels devant le Socialisme.* 1901

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* See Appendix I. Possibility of an Excess of Secondary Education.

(5) Others frankly demand a kind of secondary and higher education which shall directly prepare boys for different kinds of modern industry and commerce. But this again is a vague demand. Almost everything depends upon the kind of business for which the preparation is designed, and the sort of position which (granted that the boy's abilities are sufficient for the work) his parents can secure for him to start with. The arguments in favour of (so to speak) commercialising secondary education are of many shades. They vary from an almost ideal view of the "intellectuality" of modern business down to the vulgarest and most purblind Philistinism. But nearly all of them shirk inquiry into the ethical questions which must underlie any judgments about the aims of education and the principles of commercial competition. Some proposals for business education seem calculated to produce living dictionaries of commercial intelligence or patiently subordinate "experts" rather than men of strong character who would be likely to excel as pioneers in industry or as active leaders in practical undertakings. With a few exceptions, the commercial world of London shows few signs of belief in schemes for commercial education. This is not necessarily a proof that some form of commercial education is useless or that there is no occasion to press for its introduction. But evidently there is some gap between the ideas of many of the theoretical advocates of commercial education and the actual facts of business life. Hence there is a sort of deadlock. Moreover, any plan for lowering the tone of secondary education in order to furnish capital with cheap and unquestioning intellectual tools would arouse deep and angry resentment among all who believe that, whatever else it does or fails to do, education should at least endeavour to illumine moral principle, to inculcate a high sense of responsibility and of honour, to strengthen individuality of character, and to help each man to form a clear but discriminating judgment in unexpected difficulties and in confused and intricate affairs. Imagination, energy, and courage are, indeed, indispensable to the building up and widening of trade, but the permanent prosperity of a great commercial people is rooted in honour, in truthfulness, and in the loyal keeping of promises.

The above are some of the many conflicting opinions that are now being urged in different parts of the world in regard to secondary education. But it is not the future of secondary schools only which is involved: the present upheaval of thought and feeling upon educational questions affects the whole problem of education in all its grades. Some are sanguine that we are on the eve of a great renewal of educational ideas, and that after a sharp breach with the old tradition we shall soon see a complete change in what is generally taught in schools, and the general adoption of new standards by which to judge what is excellent in school life. For my own part, I cannot share these views. It seems to me extremely unlikely that there will be any sudden or complete break in educational tradition. The

latter is one of the most conservative forces in the world, and has persisted through many social and political revolutions. Change there is certain to be, and for a time changes are likely to come at an accelerated speed, but the adoption of new ideas and new methods will probably be gradual and not at all dramatically sudden. There is a great deal of latent wisdom in established forms of teaching and training, and it is impossible to judge, without many years of trial, what is the real value, and what are the unforeseen drawbacks, of a new subject of instruction or of new methods of teaching it. Not very long ago some educational reformers felt assured that the remedy for *stupor pedagogicus* would be found in requiring so many hours a week of natural science, but it has been found that chemistry and physics can be taught in schools as dogmatically and uninventively as if they were a new form of catechism. In strong reaction against this perversion of scientific method, emphasis has more recently been laid on the importance of getting children to find out some things for themselves. But, as a matter of fact, the stock of applied knowledge in the world is so vast that we are all obliged at every period of our life to take a great deal for granted, besides discovering as much as possible for ourselves. It is not a bad preparation for life to acquire at school the habit of living partly by faith and partly by independent investigation. The two processes have often to be combined in a single course of thought as well as of action.

There is a good deal of extravagance and exaggeration in much that has recently been written, especially in France, in criticism of the ordinary routine in secondary schools. Reform is neither so easy nor indeed so universally necessary as some writers would make out. But the fact remains that there is a great deal of emotion on the subject of education at the present time. This does not lessen the gravity of the position. Education is always a sensitive point, because any settled practice of training of the young really rests on certain moral and intellectual assumptions which are exactly the things challenged by those eager for sweeping change. Therefore, excitement (and especially rather inarticulate excitement) about educational questions may be regarded as a danger-signal, indicating great disturbance in people's minds. Nothing is more explosive than this intense feeling of dislike for the old traditions. And though, when it comes to formulating new plans of study or training, there is an extraordinary conflict of views and nothing which approaches to general agreement, there is nevertheless a very significant, and apparently growing, mass of opinion adverse to the present condition of secondary education over a large part of Europe.

Last year there were held in Paris a number of international congresses on educational subjects. One congress discussed primary education; another, secondary; a third, university; and so on, through nearly the whole field of educational effort. It often happens in any such assembly that, out of a considerable number of topics presented on the programme, some one subject becomes by general consent, the chief matter of debate. This

generally takes place when there is some special difficulty which is pressing on the minds of thoughtful men, engaged in the study of the same subject in all parts of the world. Last year, at the Congress on Primary Education, the members were specially concerned with the problem how to deepen the moral influences of the primary school. At the Congress on University Education, the subject which excited the most interest was the question how best the universities can extend their teaching in such a way as to bring the steadying influences of dispassionate and disinterested study to bear on the masses of adult citizens and voters. At the Congress on Secondary Education, the chief debate turned on the question what should be the curriculum of studies in a secondary school, with special regard to the effects of education on character. It is noteworthy that in all three cases what was really under review was the bearing of education on conduct. In other words, the business of a school is not exclusively intellectual. Disproportionate attention to the intellectual side of its work results in the weakening of those forms of moral training (much more the outcome of quiet personal influence and example than of direct instruction) which are indispensable to the strengthening of character as well as to the gaining of true knowledge and to the right use of it when gained. The secondary schools on the Continent seem, in the main, to have over-intellectualised themselves. Our English schools, on the contrary, are too often intellectually below par. We have much to learn from them, and they from us. What is wanted is to hit the mean.

CHAPTER III.

Currents of Opinion on the Subject of the Secondary Education of Boys in Germany.

Among Gray's fragments on education there have been preserved the remarks that "it is the proper work of education and government *united* to redress the faults that arise from the soil and air," and that "the principal drift of education should be to make men *think* in the northern climates and *act* in the southern."* The first of these maxims exactly describes the remarkable work which the Government of Prussia has accomplished, by means of persistent efforts extending over more than a century, not only for its own citizens, but for the German Empire, and indirectly for the whole world. The second maxim illustrates the intellectual aim which dominates the whole of German higher education. It spares no pains to make boys *think*. But it was never intended to make them

* Aldine edition of Gray's Poems. Note to the *Alliance of Education and Government*, p. 152.

think for the mere pleasure of thinking. It intends to make them *think* in order that they may *act*.

Act, that is, not on impulse; not merely with blind, dogged persistence, and not simply with splendid individual energy and courage, but with far-seeing calculation, with skilful and economical adjustment of well-chosen means to well-defined ends, and in combination with great numbers of other workers uniting their strength in the same task. The organisation of modern life in Prussia has been dominated by scientific conceptions; not, that is, by any exclusive regard for physical science in its narrower sense, but by those ideas of exact and co-operative inquiry and endeavour which have been so brilliantly illustrated, and therefore so powerfully enforced, by the advance of modern science. The fundamental characteristic of the best German effort, in many fields of practical as well as of speculative activity, is concerted specialisation, but not premature specialisation. The Germans know that, in order to specialise to the best advantage, nine men out of ten need the equipment which is given by a good general education.

It is highly necessary that Englishmen should realise how efficient, from the point of view of intelligent instruction, are the German secondary schools. Much can be learnt from a study o' their methods and also from their scientific precision of educational aim. But it is a different thing to argue that the best way to secure the future of British industry and commerce would be to imitate the German form of educational and academic organisation. It is a large assumption, to start with, that an educational system can be transferred from one country to another, as if it were a system of gas lighting or of electric traction. Moreover, the German system of education is but a part of their social order, and in order to make a true copy of it, it would be necessary to introduce into England a degree of State control which would not only be alien to our more recent traditions but extremely unlikely to commend itself to English tastes. Assuming, however, that it were thought desirable and found possible to recast the whole structure of our administration, and largely to remodel the conditions of our social life, it is far from likely that the new kind of organisation, however closely it followed German precedents, would produce the same results in England as in Germany. Lastly, and most important of all, no mere copy, however faithful, of the administrative machinery of German life would necessarily reproduce the spirit of German intellectual effort, which is the true secret of what is best in German education, and which has been the most powerful driving force in their administrative machine. What is really worth copying, and perhaps the one thing which could be directly imitated, is German devotion to the claims of knowledge. It is in this that, as a nation, we are so far behind them, while in many matters of political and social organisation we are so far ahead.

In the *Advancement of Learning* Bacon says that "it is order, pursuit, sequence, and interchange of application which is mighty in nature; which, although it requires more exact knowledge in

prescribing, and more precise obedience in observing, yet is recompensed with the magnitude of effects." With this method he unfavourably contrasts another, consisting of "inconstancies and every-day's devices, without any settled providence or project." It is the first of these methods which the Germans aim at following. But concerted specialisation of the German type is only possible when the scattered parts, which form the whole, are held together by some large controlling power, recognised and obeyed by every single agent in the great undertaking. Division of intellectual labour on an immense scale implies the existence in the background of some dominant authority, providing the framework within which each separate worker finds his place and his duty. In the highest types of concerted intellectual effort, this place of dominant authority is not occupied by the administrative Government. In the greatest and most fruitful intellectual movements, the really dominant authority has always been not administrative in character, but intellectual or (in the largest sense of the word) spiritual. The binding idea which most firmly holds together the intellectual labours of men engaged in the building up of knowledge is the conception of the unity of all knowledge and the conviction that all individual research and labour should be subordinated to the claims of knowledge as a whole and of society as a whole. This idea may seem dim and shadowy and transcendental, but nevertheless it has always been a very real and potent force in the minds of those who have done the most illustrious deeds in the field of scientific research. The real strength of a great scientific movement comes, not from any vulgar regard for sensational or profitable results, but from loyalty to the higher claims of truth. Such a sense of the continuous claims of knowledge on the duty of the researcher becomes a habit of thought. It is gradually embodied in so many scientific associations, in so much professional *esprit de corps*, and in so many of the relations of social life, that it greatly affects men who would otherwise have been almost insusceptible of its influence. But it alone can uphold each individual worker and sustain him in apparent failure and through years, or even a lifetime, of obscurity. This is the spirit which is present in the minds of true scientific investigators all over the world.

It is important to dwell on this intangible and spiritual aspect of all great scientific movements, because, in considering the case of Germany, there is some danger of taking what is, after all, but a mere matter of organisation to be the real cause of her scientific greatness. The initial and underlying cause of that greatness was not the skilful contriving of a new form of State organisation, but an intense and self-sacrificing enthusiasm for truth. Without that enthusiasm there would have been (so far as we can see) no great building-up of German culture, and no ultimate accomplishment of German unity. The resources and organisation of the State have, it is true, been called in, almost from the first, to help forward the work which the great outpouring of patriotic and

scientific enthusiasm began. But State organisation was not the source of what has been really vital in the movement. Free scientific inquiry may even in the end have to escape from the grip of the State. But for a time at all events State organisation seems to have acted as a shell to protect scientific inquiry from the dangers besetting it in the earlier phases of its work, and in Germany it has done much to further the prompt application of scientific knowledge to the tasks of practical life.

If the Government of a country be so constituted as to be able to enter with understanding and discriminating sympathy into the actual tendencies of scientific thought, and if it be both able and willing to give sufficient and timely aid to projects and inquiries which need and merit pecuniary help, it may promote scientific effort to an extraordinary degree. Germany is a standing proof of what can thus be done and (apart from many more important considerations) how profitable it may be to do it. But this is a very different thing from putting it into the power of the Government to determine, directly or indirectly, what course scientific thought shall take: what it shall avoid and what it shall try to prove. No Government can ever know enough to direct the course of scientific investigation. Science itself must decide what course it will take, and each individual worker must feel within himself that, though he is but part of a greater whole and not individually master of the results of his own labours, he is nevertheless absolutely free from any pressure of political control and under a moral obligation to serve knowledge for its own sake. It was tne spirit of untrammelled inquiry which created the great intellectual tradition of the German universities and which has been the real cause of German scientific progress. The future alone can show how far such freedom is compatible with centralised State control.

But at the present time many sides of German life are organised on principles which are nearly akin to those underlying the Collectivist ideal. We in England find it difficult to realise on how many sides of individual and communal life Government in Germany has laid its hand. What was it that induced the Prussian nation, and ultimately the German people, to submit to this centralised control, which England has hitherto resisted? It was not mere physical compulsion. Still less was it the hope of gain. It was a moral conviction of the need for unity. This was the power which constrained the Germans (by their own admission the most individualistic nation in the world) willingly and indeed enthusiastically to bind themselves in a common service and to place themselves under so stringent a form of governmental supervision. It was an act of self-discipline, not a mere bargain for profit, and still less a result of threats from abroad. The necessity for it doubtless appealed to different minds in different ways. Some would more clearly perceive the administrative advantages others the military, others the economical. But beneath all this, and really

determining the course of events, was this moral and intellectual conviction that the supreme claim on the individual was that of service in the interests of knowledge as a whole and of the community as a whole.* The crucial step was taken at the beginning of the nineteenth century, and Prussia has never gone back. She has built up, in consequence, what is now an Imperial fabric of scientific government, one essential part of it being educational control. This administrative organisation was intended to support and safeguard at every point what the movement of moral and intellectual enthusiasm began. Whether it has actually done so in the sense which its founders intended is another question. Whether, in its present form, the machinery of State control is really promoting the best interests of German thought is a matter about which very different opinions are held. But, in any case, let us not mistake the external machinery for the real cause of German culture or even of commercial prosperity. The strongest fabric of administrative organisation would not last long, if at any time the inner philosophic conviction, which really upholds it, were to die away. The original impulse was two-fold. It came from a very vivid conception of the unity and dignity of knowledge, and from a no less ardent belief that, in order to secure the essentials of intellectual freedom for the individual and the possibility of learned leisure in the State, there must be administrative unity in national life. Necessarily the two impulses—the one cosmopolitan in character, the other intensely national—have from time to time come into conflict. At one period, the cosmopolitan tendency threatens to dominate the national; at another, the national interest seems to prevail over cosmopolitan sympathies. But, all through German history, since the beginning of the hegemony of Prussia, we can trace these two tendencies in German education, reciprocal in their influence and each checking the other; so that, as a matter of fact, while there is nowhere else a more intensely national system of education than that of Germany, there is at the same time no country which is regarded by so many scientific workers all over the world as the true Alma Mater of their intellectual life.†

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* *Cf.* Fichte's Lectures on *The Characteristics of the Present Age*, especially Lecture XIV., on "The Development of the State in Modern Europe."

† The United States Ambassador to Germany, Mr. White, speaking at the Thanksgiving Day banquet in Berlin, November 29th, 1900, said that "though Great Britain was generally revered as the motherland of the United States, yet Germany, from the intellectual point of view, had more and more become the second mother of the United States. More than any other country, Germany had made the universities and technical high schools of America what they now were—a powerful force in the development of American civilisation." (*Times*, December 1st, 1900.) Professor Virchow, of the University of Berlin, speaking at the Prussian Secondary Education Conference, in June, 1900, referred to the large numbers of American and Japanese studying in the German Universities, and attributed some part of the high reputation enjoyed by German medicine abroad to the fact

It happens that, at the present time, this German devotion to the idea of science and organisation is showing itself to be capable of producing remarkable results in the sphere of commerce and

that foreign students have been encouraged to avail themselves of the higher instruction provided at the great German seats of learning.—(*Verhandlungen über Fragen des höheren Unterrichts, Berlin, 6 bis 8 Juni*, 1900, p. 22. Halle, Waisenhaus, 1901.) Sir Michael Foster, speaking in London at St. George's Hospital Medical School on November 6th, 1900, said that "he heard much nowadays about post-graduate study. He did not feel that he had quite grasped what was always meant by post-graduate study, which sometimes seemed to mean teaching men the things which they ought to have learnt before they graduated. If that was the case, post-graduate study was to be discouraged. It was sometimes spoken of as if it were a means of polishing the graduates who had been rough hewn by the examinations. If that was all, he did not think they need spend much time or labour upon it. But there was a post-graduate study which appeared to be of immense value. It was when the student was cleared from all the trammels of examining bodies that he was in the most fit position to be put on the proper path of inquiry, to be trained in the true methods of research, to be trained to work so as to satisfy, not the demands of an examiner, but the demands of nature. Post-graduate study which would act as a definite inauguration into inquiry would be of very great value indeed to the profession. He had just returned from some long travels in America, where he met many of his brethren, and where he heard, not once only but again and again, that when they sent their graduates to England, although those graduates were impressed with what they saw as to the unsurpassed excellence with which our London schools trained the medical student, they themselves, as graduates seeking post-graduate aid, got very little from the general hospitals, and had to go away from England, often against their wish, and pursue research abroad. He thought this pointed to the existence of a need in our hospitals which should be supplied, and that if this were done a large addition to our medical knowledge would be the result." (*Times*, November 7th, 1900.)

The educational attractions of the German Universities and Technical High Schools are so great as to cause a somewhat formidable influx of foreign students. On this subject the following letter appeared in the *Times* from the Berlin correspondent on July 5th 1901:—"The number of foreign students who come to Germany in order to obtain a University training or to supplement the training acquired in their own countries has given rise to many complaints. At present there are no fewer than 2,606 foreigners on the books of German Universities. Of these 855 are studying at Berlin, 370 at Leipzig, 232 at Munich, 159 at Heidelberg, 141 at Halle, 140 at Freiburg, and 102 at Göttingen. The rest are divided among the other Universities. The Russians are the nation most strongly represented, and can show at present no fewer than 717 students at German Universities. The fact is explained by the present unfortunate state of affairs in the Russian Universities and by the difficulties which are placed in the way of the higher education of Jews in that country. In addition to the Russians, there are 507 Austrians, 256 Swiss, 157 Englishmen, 323 Americans (mostly from the United States), 154 Asiatics (mostly from Japan), 68 Bulgarians, 50 Dutchmen, 47 Frenchmen, 35 Turks, and contingents from many other nations. In all 7·3 per cent. of the students at the German Universities are foreigners. These figures do not include the numerous foreigners studying at the Technical High Schools. The large percentage of foreign students is regarded as a very serious grievance in many academical quarters. It is felt to be unjust that so many strangers should reap the benefits of the sacrifices made by the German States for the higher education of their youth. Many professors complain that the

industry.* But material advantage of this kind has been but a by-product (and a somewhat unexpected by-product) of the spiritual and intellectual enthusiasm which found one of its expressions in Imperial and commercial union. One of our greatest men of science said a little time ago that the most successful investigators are those who pursue their inquiries, not with the hope of profit, but for the love of knowledge.† It may be conjectured that the same truth applies to German industry and commerce. We must not forget, indeed, that the Germans have always been one of the chief commercial nations of Europe, and that, but for internal dissensions and foreign wars, they might well have retained for generations the chief place in European trade. German science did not create German aptitude for business, but German science and painstaking applications of scientific method have transformed German industry and are among the chief causes of the remarkable recent extensions of German trade. And the roots of German science lie not in the desire for material gain, but in disinterested devotion to a severe and remote ideal of philosophic truth. It is the present fashion in Germany rather to scoff at the dreamy and self-absorbed philosopher, but it is the philosopher and the self-denying man of science, serving knowledge for her own sake and with no hope of further reward, who first set in operation the causes of this remarkable growth of industrial and commercial success, and nothing would be more likely to threaten the future prosperity of German trade and the welfare of German institutions than the decline of that disinterested passion for knowledge, which was often noblest when most grotesque.

Some of the practical results of intellectual organisation as seen at present in Germany were excellently summarised in a leading article in the *Times* on a speech recently made by the German Emperor at the close of the North German Regatta at Cuxhaven. The Emperor asked his hearers to drink to German yachting and

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majority of the foreign students have not received a preliminary training so thorough as that enjoyed by their German contemporaries, and that in this way they bring down the level of University teaching and retard the progress of the classes in which they take part. German students protest that a disproportionate share of the limited accommodation in the laboratories of the Universities and the Technical High Schools is given to foreigners, to the disadvantage of the native students for whom it was primarily intended. The foreign students, moreover, being in many cases more or less ignorant of the German language, absorb a large part of the time and the attention of the professors and their assistants. The native students of the Technical High School of Munich have signed a petition requesting that the question of the admission of foreign students should be reconsidered, and that steps should be taken to put an end to the abuses of the present system."

* A careful study of the more direct bearings of the work of German schools or colleges on German industry and commerce will be found in Mr. Fabian Ware's *Educational Foundations of Trade and Industry.* (London, 1901.)

† Professor William Ramsay's address on "The Functions of a University," at University College, London, June 6th, 1901.

the Hanseatic spirit, two things which he regards as closely allied because "our future lies on the water."

"The notable thing in the speech," the writer in the *Times* remarks, "is the breadth of the Emperor's conception of the functions of the State. . . . He does not regard its activity as limited to the carrying on of administration, nor does he contemplate as an alternative that it should usurp the functions of individual citizens. His view evidently is that, while performing the duties of government, the State should not merely leave private enterprise unfettered, but should always be ready to second its efforts by every means open to a powerful helper. Co-operation, in short, without interference is his notion of the duty of the State towards those engaged in extending German commerce and German influence. The old Hanseatic towns were limited and hampered by the want of the vivifying and protecting power of the Empire. It is the Emperor's desire that the Hanseatic towns of to-day should enjoy all the assistance that can be given by the intelligent or watchful care of the State.

"It is not altogether easy for people in this country to understand this German ideal system of national effort. Yet it is already to a large extent realised, and is a potent factor in the competition with which Germany is rapidly confronting us everywhere. In Germany diverse national activities are co-ordinated to an extent of which people in this country have little conception. . . . Probably the root of the matter must be sought in the educational systems of the two countries. . . . Those of our people who do know about business—that is to say, the undistinguished people, the sum of whose individual energies have made our world-wide commerce—as a rule know next to nothing about the range of ideas with which our Universities concern themselves. It is not so in Germany, or at least it is not so to anything like the same extent. However they manage it, the Germans do attain to greater intellectual homogeneity. They produce men as learned as any turned out in England, but learning on the whole stands less apart from the general everyday work of the world. Therefore, those who run the administrative machine and those who carry on the vast work of individual initiative in practical affairs find it much more easy to understand one another, and to co-operate without interference, than they find it in this country. The difference is of vital importance, and it runs through everything. What we have to face to-day is not the old competition in which Englishmen always held their own—the competition of individual against individual. We have to deal with a nation intellectually organised in such a fashion that the individual, though depending upon his own efforts, is in the position of a scout who has his supports to fall back upon and a staff to provide him with information."*

So far has this intellectual organisation of German life advanced, that it seems to have already become a kind of second nature to most of the intelligent men in the nation, while of course the great mass of the people takes it for granted, without realising all that it implies. For the present, at any rate, it is producing a large number of striking and convenient results. Take, for example, the systematic development of the German navy and mercantile marine; or the development of the aniline dye industry and the manufacture of artificial indigo; or the growth (largely due, it is said, to the influence of the Reichsanstalt) of the manufacture of scientific apparatus; or again, the building up of the Imperial system of insurance for old age and for sick and invalided workmen. One thing leads to another, and, when scientific methods of

* *Times*, June 21st, 1901.

organisation have once got a real hold on national life, they permeate first one and then another set of institutions. For example, the Act of 1899 for the insurance of sick and invalided workmen (itself a further development of a former law passed ten years earlier) has greatly stimulated in Germany the study of new methods of treating consumption and other forms of tubercular disease. The Act itself empowers the authorities to institute medical treatment in cases where the powers of an insured person to earn his living in future are threatened by some curable complaint. As a direct consequence of this and the earlier Act, the State Insurance Institutes of the Imperial Board of Insurance, co-operating with other interested bodies, have brought about the establishment of forty-five sanatoria, in which some 20,000 of the poorer classes will annually be able to obtain a course of about three months' open-air treatment for tubercular disease.* But here again a variety of causes have combined to make this development possible. The immediate cause was the Insurance Act; but those who administer the insurance funds have been brought up in the habit of mind which constantly seeks scientific aid in practical difficulties and applies in a far-seeing way scientific remedies for national evils. Yet there might have been no scientific remedies to apply, unless there had been a continuous and very active process of scientific thought and investigation proceeding in the country. And the process of scientific inquiry is concerned not only with this particular problem of tubercular disease, but with thousands of other questions, out of which varied and incessant work there may start at any point some unexpected light on grave practical problems. Scientific investigation of this kind, however, cannot be limited beforehand to what is certain to be immediately profitable or practically advantageous. It must range over a wide field, and must concern itself in large measure with what is purely theoretical and remote from industrial applications. Hence it is that the tradition of disinterested research, which is the highest glory of the German universities, has been an indispensable factor in the whole process of reorganising German life on a scientific basis. And the German universities have not derived their strength from any narrow regard for immediate utility. They are great because they have been disinterested in their devotion to knowledge, and because in their pursuit of truth they have been free.

It may be true that, as a recent writer has remarked:—

"Every year thousands of young men leave the German Universities trained in scientific method, trained to distinguish between the true and false in things. This is the army with which Germany is conquering the world's markets. As chemists, engineers, manufacturers, these men apply the scientific method to practical affairs, their acquired power of discrimination enabling them to seize on every advance made in pure science, and to turn it to practical advantage."†

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* *Times*, May 27th, 1901.

† Professor Starling on "The Pressing Need for more Universities," in *The Nineteenth Century and After*, June, 1901.

But "to distinguish between the true and the false in things" is given to few, and could hardly be claimed by the most enthusiastic admirer of German universities as being the common hall-mark of an academic education. Moreover, in the application of science to the industrial and other needs of modern life, the technical high schools, as distinct from the universities, have played an important, if not a decisive, part. But in the case both of the technical high schools and of such parts of university work as have had direct bearings on industry and commerce, what has really upheld the standard of learning and kept research on the highest level has been an "imponderable thing," namely, that disinterested devotion to knowledge and truth for their own sakes and without regard to their practical consequences, which has been, as it were, the religious spirit animating the German universities. And neither technical high schools nor universities could have done their work, had not the German secondary schools furnished them with an unfailing supply of highly-disciplined material in the form of well-prepared and liberally-educated students. The outposts of the university spirit are well entrenched in the secondary schools. Higher education in Germany enjoys the advantage of unity of organisation and (so far as such a thing is ever possible) of unity of spirit and of aim.

But the fact that in Germany the working of the Imperial Insurance Laws has thus caused a great extension of a new method of combating tubercular disease illustrates yet another side of national organisation, which needs always to be taken into account in any estimate of German life. The Imperial Insurance Laws could not have been so easily carried into practice had not the Government in every German State possessed a far more detailed and continuous knowledge of the whereabouts of every individual citizen than is at the disposal of such a Government as our own. This knowledge is found useful for many purposes of administration, but the fundamental reason for possessing it is to be found in the practical needs of the system of compulsory military service. The influence of this system has deeply impressed itself on German life.

"The system of universal service," says a recent writer, "has grown into the very life of the nation. That it does not impede industry to the extent that might be supposed is due to its priority to the economic development of the country as we know it. Hence industry has merely had to accommodate itself to a condition of things which existed long before it laid claim to the energies of the people. Were a country like England to go over to universal service, its social and industrial life would have to be remodelled in every direction, and the consequences would be disturbing beyond estimation. Germany has been spared any revolution of the kind, because it imposed upon itself this yoke at a time when it entailed no great hardship, and habit and time have now entirely accustomed the bearers to the burden. Moreover, compensating circumstances of very real value exist."*

* W. H. Dawson, *German Life in Town and Country* (London: Newnes 1901), p. 84.

Side by side with the influences of German education are to be traced the influence of the German military service. The two sets of influence interact on one another and intermingle. German education impregnates the German army with science. The German army predisposes German education to ideas of organisation and discipline. It is not an accident that educational and military institutions both flourish side by side in German life.

"Germany is a land of schools, just as it is a land of soldiers, and in truth the association between the school and the army, or, more correctly, the army's efficacy, is closer than might at first sight be supposed."*

There is no doubt that one great effect of compulsory military service on the German people has been to make them more patient, more submissive to organisation from above, more disposed to accept control. German writers themselves say that by nature the German people are extremely prone to individualism. It may be an instinctive sense of this weakness that renders the German nation so ready to submit to so stringent a remedy. But there is no doubt that the habit of organising, and of submitting to organisation, has produced many valuable results in the field of industry and commerce. The rank and file have learnt how to obey, and have realised how much satisfaction comes from regular discipline. The leaders, trained to obey authority, are also educated to exercise authority, and to feel a direct personal responsibility in all details of their work, as well as to regard the scientific study of their calling as both natural and necessary. Thus military and educational discipline go hand in hand. Each helps the other; each does something to correct the other's characteristic defects. Both are preserved and fortified by law and custom and by administrative arrangements skilfully devised to attain that end. But behind all the forms of organisation (which would quickly crumble away unless upheld by and expressing some spiritual force), behind both military and educational discipline, lies the fundamental principle adopted by Scharnhorst's Committee on Military Organisation in Prussia in 1807: "All the inhabitants of the State are its defenders by birth." And this in turn was but the patriotic and military form of the moral obligation which Kant and Fichte impressed on the heart as well as on the mind of the Prussian people. In the galaxy of great thinkers and great statesmen, whose work it was to reform the government of Prussia or to pour new life into the ideals and culture of Germany as a whole,—Kant and Fichte, Stein and Hardenberg, Humboldt and Scharnhorst, Goethe and Schiller—we cannot point to one or other as solely responsible for the building up of any one department of modern German life. All were working at what was fundamentally one problem, and just as Kant helped to inspire the Prussian army, so did Scharnhorst indirectly help to fix the future organisation of the Prussian higher

* W. H. Dawson, *op. cit.* p. 108.

schools. No other nation, by imitating a little bit of German organisation, can hope thus to achieve a true reproduction of the spirit of German institutions. The fabric of its organisation practically forms one whole. That is its merit, and its danger. It must either be taken all in all, or else left unimitated. And it is not a mere matter of external organisation. In itself, elaborate organisation is apt to be mischievous and likely to do actual harm, unless it be constantly counteracted by the inner and almost unnoticed working of other forces in the national character. It would be useless to attempt to reproduce elsewhere, under other conditions and among very different national characteristics, any merely mechanical copy of German organisation, without regard to the living spirit which has animated or guided it. National institutions must grow out of the needs and character (and, not least, out of the weakness) of the nation which possesses them.

Coleridge, who drew so many of his ideas from German sources, gave a good definition of what may be regarded as the *ideal* of education in Germany. He said that the purpose of national education is "to form and train up the people of the country to obedient, free, useful, and organisable subjects, citizens and patriots, living to the benefit of the State and prepared to die for its defence."* I say the *ideal* of German education, for whether it will prove permanently possible to maintain this balanced combination of freedom and obedience, in citizenship, in moral character, and in intellectual culture, on which at bottom the whole German system rests, is a question which certainly admits of two different answers. It is possible that the balance may be disturbed by the growth, claims, and indirect results of the very commercial and industrial prosperity which it has done so much to produce. Commercial effort (unless held in check by loyalty to many other and higher obligations) tends to stimulate a kind of arrogant individualism which is opposed to the theory and practice of much of the present organisation of German life.

At present, however, industry and commerce are being materially helped by the German method of organisation. This was shown in a striking manner at the Paris Exhibition of 1900, where (according to the Report of the Royal Commission) the displays in the British Industrial Section did not, as a rule, compare so favourably as could have been wished with those of other countries. One great cause of this comparative failure on our part is found in the different attitudes adopted by the British and by other Governments. We still rely, in the main, on the voluntary system as sufficient to yield an adequate representation of the products of British industry. True to our former principles of State reserve, we preferred to "rely exclusively" (so far as the industrial section

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* S. T. Coleridge, *On the Constitution of the Church and State, according to the Idea of each* (London, 1830), p. 65.

went) "on the voluntary efforts of our manufacturers, and our exhibitors had to bear the whole of the expense which participation in an exhibition involves." The result was that large numbers of the chief firms stood aside altogether, having so much business already that they could hardly execute their orders. Many other Governments, however, (and the Government of Germany may specially be mentioned among them), took an entirely different view of their responsibilities. Their aim was to produce a display which should be representative of the very best work which their manufacturers could produce. To arrange such a display involved three steps—very large subsidies, a clearly-formulated aim in the planning of the exhibit, and the right of selecting what the collective exhibit should include. Other Governments, and notably Germany, cheerfully bore the expense and the responsibility of choosing the exhibits. Thus they acted, in a sense, as showmen of their manufacturers' best productions, bringing to bear on the task of selection a discriminating choice which all concerned seem to have regarded as the natural privilege of the Government of the country. Our proceedings were almost the exact converse of these, with the result that the Commissioners had regretfully to report that "the contrast between the orderly, symmetrical appearance of the foreign spaces in certain groups with the undignified collection of show-cases of different sizes and designs which filled the British space was little less than painful." And they conclude with these significant words:—

"We are of opinion that the voluntary system can no longer be relied upon to secure an adequate representation of British industry, and that in any future international exhibition in which it may be decided to take part, it will be necessary to have recourse to the principle of selection, which has been largely adopted by foreign Powers. This principle, which involves the payment of some of the expenses hitherto borne by exhibitors, would necessitate larger grants than it has been customary to give; but we think that, unless some approximation can be made to the expenditure of foreign Powers, no good purpose would be served by entering into further competition with them."

The Continental (and typically the German) exhibitor was organisable. The British exhibitor, on the other hand, seems to have resented and resisted any limitation on individual independence. On this point the Commissioners write as follows:—

"As a rule a British manufacturer will only exhibit if he can select his own goods and display them in his own way and in his own show-case. He is impatient of advice; he will not submit to dictation; he will not share his show-case with others; nor will he join with others to adopt a uniform plan of arrangement. For this reason it is exceedingly difficult to organise collective exhibits. We were strongly impressed from the beginning with the advantages which such exhibits possess. They save space; they avoid the duplication of similar objects, and in the case of many industries they ensure a higher level of excellence than any single firm can hope to attain. We endeavoured to persuade exhibitors to adopt the principle, but our efforts met with so little success that we had to abandon the attempt. In the few instances in which our recommendations were accepted . . .

the result amply justified our expectations; but, with few exceptions, the objection to combination, arising out of trade rivalry, proved too strong, and the experiment was tried on too limited a scale to have an appreciable effect on the section as a whole. We are none the less convinced that the best hope for the future lies in this direction, and in well-organised collective exhibits. . . ."

This contrast between our own country and the other great nations concerned is typical of many similar differences in other spheres of public effort, and not least in that of education.*

In a recent address to the members and friends of the Medical Graduates' College and Polyclinic, Mr. Balfour drew attention to another example of the present backwardness of England in the forward march of scientific inquiry and organised research. He put to his hearers, "in all solemnity and seriousness," the following question:—

"The growth of medical knowledge is surely one of the most remarkable scientific facts of the last half-century. . . . Can we honestly say that in this great development of medical knowledge and therapeutic science this country has taken the leading part which it ought to have taken? I speak in the presence of gentlemen whose names are of European fame . . . and I do not forget that in perhaps the two branches of medical advance which have done most to save human life and to diminish human pain—I mean the use of anæsthetics and antiseptic surgical treatment—this country may have a claim to have taken the lead. . . . And yet when I make an allowance for those great claims on the gratitude of the world which I think we possess, it remains the fact that, so far at least as I am able to judge, we cannot say that, as compared with Germany, or with France, or with Italy, we have done all that, perhaps, we might have done as pioneers of medical discovery. I may be wrong. It is only a personal opinion, given for what it is worth, but I fear that any investigator who set himself, in a perfectly impartial spirit, to examine the respective claims upon the gratitude of mankind of these great nations would not be able, in all honesty and fairness, to say that we had any claim to take the lead.

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* The British collective educational exhibit at Paris may be cited as a proof of the benefit of more direct initiative from the central Government, and of the selection of a representative exhibit. Never before had the chief branches of British education been so well or systematically illustrated at a foreign exhibition. The exhibit excited great interest among foreign students of education, many of whom had never before had an opportunity of seeing any such collection of documents, photographs, students' work, etc., illustrating British education in its various types and grades. But the exhibit could never have been got together without action from the centre, and unless a special grant had been made to enable the Education Sub-committee of the Royal Commission to carry out their plan. One feature of that plan was the appointment of an officer who should represent the Education Sub-Committee in Paris during the period of the Exhibition. Mr. Fabian Ware was appointed as representative, and not only devoted much labour to the arrangement of the collective educational exhibit, but was very successful in explaining to the numerous visitors and jurymen the meaning and relation of the various parts of the display. In the preparation of the different parts of the collective exhibit (which were selected from special exhibitions held in England, Wales, and Scotland some months before), the various educational authorities, societies, and institutions showed every readiness to co-operate in a work which they knew had been set on foot in the public interest and for the national credit.

Now, if that is so, do you not think that we—the public, the unprofessional and unscientific public—are in part to blame for that state of things? Do you think that we have shown a recognition of the duties which fall upon us in this matter? We are proud to say that in this country we leave to private enterprise and to private benevolence duties which in other and less fortunate countries are entrusted to the Government. (Cheers.) Yes, that is true, but if that policy is to be successful, you must have the private enterprise and the private benevolence, and have we shown the possession of those great qualities in this particular to the extent that we ought to have done? Personally, I grieve to say, I have no doubt as to the answer that should be given. I do not believe that any man who looks round the equipment of our universities, or medical schools, or other places of education, can honestly say in his heart that we have done enough to equip research with all the costly armoury which research must have in these modern days. (Cheers.) We, the richest country in the world, lag behind Germany, France, Switzerland, and Italy. (Hear, hear.) Is it not disgraceful? (Hear, hear.) Are we too poor? ("No.")—or are we too stupid? (Cheers.) Do we lack the imagination required to show what these apparently remote and abstract studies do for the happiness of mankind? We can appreciate that which obviously and directly ministers to human advancement and facility, but seem, somehow or other, to be deficient in that higher form of imagination, in that longer sight, which sees in studies which have no obvious, necessary, or immediate result the foundation of the knowledge which shall give far greater happiness to mankind than any immediate, material, industrial advancement can possibly do; and I fear, and greatly fear, that, lacking that imagination, we have allowed ourselves to lag in the glorious race run now by civilised countries in pursuit of knowledge, and we have permitted ourselves, to far too great an extent, to depend upon others for those additions to our knowledge which surely we might have made for ourselves. . . . The cause I plead now is not the cause of a party, nor of a nation, but the cause of mankind at large. Every discovery which is made in the laboratories in Germany, France, or Italy is the possession not only of those countries, but of the whole world. Let us not be backward in this great international competition, which surely may be said, in some senses, to balance with that yet more costly and destructive competition in armaments and, it may be, in commerce. Here, at all events, the interests of all nations are at one. Here there should be no undue rivalry, or, if there be, the only rivalry we should permit is what nation should add most to that scientific knowledge on which, more than on the efforts of statesmen, politicians, and soldiers, depends the future progress and happiness of mankind. These are feelings which I have long entertained, and have taken such opportunities as I could to express, but which, I think, are not sufficiently realised by our countrymen."*

The backwardness to which Mr. Balfour refers is evidently the result of a complicated variety of causes, some social, others educational, others administrative. No single remedy, still less scolding or panic, will put what is wrong to rights. It seems to be one of our national characteristics that, though we often produce great political and social movements (which indeed involve, if not new thoughts, at any rate strikingly new combinations of thought and a fresh attitude of mind), we are somewhat averse from forming organised schools of scientific thought. This is in striking contrast to the fact that in the sphere of science some of the greatest and most epoch-making names are those of individual Englishmen. There is the

* *Times* report, May 23rd, 1901.

same kind of contrast between the great individual names which England has given to purely speculative philosophy and the comparative absence of minor schools of English thinkers devoted to the laborious and methodical elucidation and advancement of the thoughts put forward by the master minds. On the other hand, in any branch of intellectual inquiry which has an immediate bearing on political or social movements, we seem somewhat to overcome our reluctance to forming schools of thought, and both in economics and in political philosophy our greatest thinkers have been followed by more or less organised forces working out the details of their ideas, much as the theories of a great scientific thinker are pushed to their detailed conclusions by the ant-like efforts of the workers in modern laboratories. Education is another study which appeals to us because of its immediate practical bearings, rather than because of its more scientific interests, though it is the latter which fascinate many German investigators. Dr. Arnold's theories were mostly implicit in practice, and, while his practical arrangements have been studied and developed by great numbers of English schoolmasters, comparatively little attention has been given by the latter to the theories underlying his work. But the result would have been very different if Dr. Arnold had been a German. His miscellaneous and social writings would have been made the starting point for a long succession of critical and historical commentaries. Or, to take another example, though generations of Englishmen have read and profited by Locke's *Thoughts concerning Education*, no school of English educators has ever laboured at Locke's educational theories as the Germans have laboured at Herbart's, and yet Locke's influence has been of determinative importance in the development of modern ideas of education. It is true that what has been well called "a trained impatience" is a healthy influence in national life, but are we not, as a nation, apt to be too impatient of the infinitely painstaking processes on which much of modern scientific advance depends? We have rarely applied the principles of the division of labour, or the methods of the factory system, to intellectual, as we have to industrial, matters. A sense of the dignity and value of abstract knowledge has never been so widely diffused among us as among the Germans or the French. A piece of original research seems to gain for a man more professional consideration in France or in Germany than it does in England. Yet "consideration" of this kind is, in no unworthy sense, part of the real wages of research. For a poor man to give up lucrative opportunities and to devote years to patient scientific inquiry means, relatively, a greater sacrifice in England than on the Continent. It is significant how many of our great thinkers have been men who happened to enjoy independent leisure. Our Government has reflected the prevailing opinion and has done, compared with the Governments of France or Germany, but little to endow the higher branches of learning. Nor do our great secondary schools produce many recruits for a life of learning as

such. A promising boy at a German gymnasium or in a French *lycée* probably thinks with much more veneration of the dignity of a university professor than would his counterpart at an English public school. In so far as this means that the English school boy declines to venerate "bookish" people, his attitude is creditable to his good sense. But the best professors are not bookish, and what is really at issue is the national respect for knowledge as compared with that shown for "practical success in life." Yet, English public opinion being what it is, can we much wonder that educational influences generally point in some other direction than towards a life of ill-paid and somewhat coldly-regarded "research," and that most young men of capacity find themselves virtually compelled to throw themselves quickly into "practical life"? It is unlikely that any mere change in school curricula would quickly, if at all, affect what is evidently a deep-seated tendency in the national mind. The present state of things is nothing new. We have not fallen away from an earlier state of national devotion to laboratory work. That, as a nation, we should be doing so little of it is doubtless to be regretted; and our reluctance to throw ourselves into the organised specialisation of modern science may perhaps entail serious consequences in the future. But everyone will admit that our system does produce, from time to time, really great scientific leaders, and that a very large proportion of the Englishmen who are "researching" are doing so because they love it and because they would not willingly be doing anything else. Very much needs to be done, and quickly done, to provide more inducements and better opportunities in England for advanced research. But it is to be hoped that, in this as in other departments of national life, care will be taken not to continentalise the English system of education at the cost of impairing those other forms of service to which we more naturally betake ourselves. Granting to the full that much of our neglect of scientific research is due to nothing more respectable than stupidity, idleness, and want of higher imagination; granting that the great wealth of England has so raised the standard of living that thousands of men with scholarly and scientific interests are working at professions or callings which "bring in money," rather than at more slenderly paid but higher investigations, because they are unwilling to be content with a way of life which would have to be much simpler than that of their friends and neighbours; granting that many who might, had they been so disposed, have reached distinction in science prefer to enjoy their independence in other ways; nevertheless is there not much which may justly be urged on the other side, and which should deter us from any too ready acceptance of the view that what the Germans have found best for them we should find best for us? Is there not, after all, a good deal to be said for the English idea that in a professional man shrewd judgment and qualities of heart and humour often matter far more than purely intellectual attainments; and that a lawyer or a doctor or a clergy-

man who combines adequate learning with deep insight into human nature and ready sympathy with human sorrow is, for many of the needs of life, a finer and greater man than some pale recluse of the library or some devotee of the laboratory, who has cut himself off from many human interests and may even, like Odin, have pawned his eye for knowledge?

The Continental system excels in producing both the expert and respect for the expert. The English system, when it excels at all, excels in producing a first-rate kind of common-sense, which is apt to be very impatient of the one-sidedness and want of all-round judgment which are sometimes characteristic of "experts." English people have an instinctive feeling that the expert does not really fit in with their view of life or with their notions of government. He is apt, they think, to be an incongruous element, and to embarrass plain men who know less than he does and yet have a private conviction that their judgment on the facts is shrewder than his. They regard him as prone to take a one-sided view of things, to press his hobby too hard, to misunderstand the relative importance of things, and to overlook factors in the problem which, though lying outside his special province, ought to be kept steadily in view whenever any part of the problem is under consideration. England, at heart, hates the expert; Germany rejoices in him. It is the paid expert control which so completely distinguishes, in its actual working, German municipal government from English, that almost all analogies loosely drawn from one to the other, are misleading. Paid expert leadership (not subordinate expert advice) is the key to the efficiency and economy of German municipal administration of the modern type, and this is only one of the social forces which render the career of an expert more attractive in Germany than here.

Yet is there not a great deal to be said on the English side of the question? We have always admired those forms of creative power which express themselves either in some artistic work of imagination or in (what is another kind of artistic and imaginative achievement) the building up of some great institution. Only those can do either who have the inborn power to do it. Education (using the word in its widest sense) can do much to train, refine, and discipline the inborn power. Still we have never seriously believed that mere school teaching can produce what is really original power. And it is clear that the creative faculty must be exercised and trained by *doing* things. Reading about them or hearing about them is not enough. Therefore we are in the habit of liking our national life to be so arranged as to allow as much freedom as possible for every gifted individual to express himself according to his inborn faculty. This means that we prefer untidy freedom to an immaculately neat system of restraints. We resent the idea of pressing boys or girls to learn a great deal at school. We believe in the value of a good deal of well-employed idleness during early years. Especially in the case of children with any sign of really original and creative power do we feel that compulsion to work along

conventional lines may have actually mischievous results. What from the scholastic point of view is idleness, may be, to certain gifted temperaments, a necessary part of education. It was a great poet, not a wastrel, who "as man and boy" had been—

> "An idler in the land;
> Contented if he might enjoy
> The things which others understand."

It is quite true that liberty of this kind is often abused, and that all truancy is not a sign of genius. But do we not at heart believe that it is better intellectually to sacrifice ninety-nine mediocrities, than to injure a single case of really original power?

This, however, is the converse of the German point of view. The German temperament seems to take much more kindly to school lessons than the English temperament has ever done. It seems also to be more rarely endowed with really creative power. It gets more out of itself under the steady and methodical discipline of organised and systematic study. Therefore it is inclined to favour a system of education which leaves little room for minor originalities, and which prefers to make as much as possible of the ninety-nine rather than to run the risk of sacrificing them to the hundredth. It is in the habit of attending school with much more regularity and spontaneous desire for instruction. It submits to elaborately devised and, to the English mind, tedious methods of teaching. It is more organisable, more easily kneaded into large lumps, more patient of permanent restraint. Each of the two temperaments has its merits, and each has its defects. But the same system of education does not fit both. What helps the one is apt to hamper the other.

And is there not the same difference between the typical German and the typical Englishman in their tastes as to the kind of social organisation into which they have to pass in later life? The Englishman likes to find himself among institutions, one or more of which he can mould to his own liking, or even reconstruct according to his sense of need. In what countless societies, clubs, councils, and other forms of free association the Englishman finds expression for his activities and for his love of trying to realise his own (and not some one else's) ideal of corporate life! In order that he may have the opportunity of exercising this faculty, he prefers as a rule to keep his institutions loose and plastic, so that at almost any point in them there may be room for some new development. He prefers, therefore, a rather wasteful but comfortable kind of freedom to a tidy but tightly-fitting organisation; and this preference affects nearly all his political and social institutions, both in the mother country and in the colonies. The German, on the other hand, can often feel free and happy under what to many Englishmen would be an almost intolerable restraint.

The English mind is usually slower than the German in point of intellectual apprehension, but it is often stronger in point of judgment. The Englishman seems naturally the more conscious

of the complexity of things. He is also often singularly inarticulate, and his inability to express all that he feels, or has an uneasy notion that he ought to feel, gains for him a reputation of muddle-headedness, which is sometimes undeserved. It is to be hoped that the more keenly intellectual training, which educational reformers are now prescribing for him, will not result either in his losing part of his natural sensitiveness to latent facts or in his becoming so preternaturally conscious of the complexity of human affairs as to lose his nerve and *insouciance* in action. Too much of a wrong kind of "education" might produce both these calamities. Mr. George Saunders, who has had exceptional opportunities of studying English and German characteristics, writes as follows:—"I find that the intellectual apprehension of the average educated German is at least, on a rough computation, ten times quicker than that of the average educated Englishman. On the other hand, in nine cases out of ten, I find the former's intellectual judgment most uncertain and weak, and often most conventional. In ordinary matters of judgment, it usually turns out that the Englishman has, perhaps unconsciously, been taking a much wider basis for his induction than the German has. The German has so persistently been taught the value of specialisation that he adopts a spurious kind of it in his ordinary judgments, and limits his field of vision quite unnecessarily. He is taught at school to form judgments on the strength of the facts submitted to him, and not to distrust their adequacy. Hence gifted Germans with international experience often contrast the hesitancy and care with which an educated Englishman expresses his views on any subject with the eagerness and rashness manifested by the majority of educated Germans in talking on any subject under the sun. The difference, I suspect, goes pretty deep." Psychological differences of this kind ought not to be overlooked in any comparison between the educational systems which are at work in the two countries.

At the present time, for various reasons, we see the German system in a rather favourable light. That system is economical, systematic, tidy, and calculated to promote a certain kind of welfare among great masses of people. It lends itself to the prompt adoption and skilful use of scientific methods. It is in unison with that phase of industrial and commercial development which led Count Tornielli to say on a recent occasion that "the selfishness and narrowness of commerce had given place to the association of national economic forces in powerful groups"*; and it is in natural sympathy with those tendencies in modern thought which are in the direction of collectivism, and which emphasise the claims of the "Leviathan" or State, rather than those of the individual citizen. But let us not forget that the system has also a dark side. It is inevitably repressive of much that is healthy and good as well as of much that is mischievous. Begun with the most excellent

* Speech at the Italian Chamber of Commerce in Paris, *Times*, June 8th, 1901.

intentions, and attended with many admirable results, it nevertheless ends by exacting a heavy price for economy and neatness of organisation. It cannot but prefer that people should conform to its pattern, rather than they should question the wisdom of its plans. Therefore it cannot be expected to favour arrangements which would encourage awkward individuality of character or varieties of political development. Yet does not progress depend on there being an incessant growth of new political and moral ideas cropping up over the whole surface of society, not simply in this or that little plot expressly set aside for such cultivation? Can any man, or group of men, so penetrate the future, or so divine the inner and secret workings of human life, as to be able to decide which ideas shall be allowed a trial and which must be suppressed as futile or perilous? Many of those ideas which have worked the greatest changes must have looked at first sight the least promising, were often the most obscure, and certainly proved the most repulsive to the established order. Incessant criticism of official patterns, and liberty to act in frank opposition to, or in competition with, what is authoritatively approved, seem almost necessary conditions for further progress. Yet if a highly-centralised State once gets a tight grip on the conditions of intellectual life, those who act on behalf of the State are apt (often with the best intentions) to discourage freedom of discussion and, what matters far more, freedom of social and educational experiment. We are apt to use the word "State" as if it meant the whole body of the people, but practically the word may come to mean, under certain forms of national organisation, the hierarchy which controls the machinery of Government. Such a hierarchy is bound, if only for reasons of administrative efficiency and of intellectual police, to dislike discussion rather than to provide opportunity for it. With a specially unfavourable eye would it be likely to regard persistent and puzzling variety of free, spontaneous experiment, because such a state of things would produce a sort of administrative chaos. It would probably be even more willing to tolerate from time to time some extravagant kind of criticism, because it would be rather to its interest that the alternative should seem to be between extreme State control and some form of social anarchy.

But, it may be replied, is there not special reason for effective State control of intellectual and educational developments at a time when the world is passing through so perilous a period of change in regard to the ideas which lie at the very foundation of social order and of national life? That is an argument which appeals to some minds far more strongly than to others, and which some may regard as decisive. It is possible that there are some nations which need, far more than others, the discipline and protection of severe State control at a time of almost bewildering confusion in intellectual and moral ideals. The German people has always been highly sensitive to changes in the intellectual atmosphere. It is apt to press new ideas to extreme conclusions, not only in theory but in practice.

A *régime* of rather stern control may be regarded by many thoughtful Germans as a necessary preservative against the more disintegrating tendencies of much modern thought.

But it would not be well to conceal from ourselves the fact that, even for Germany, such intellectual control has its bad side as well as its good. One of the prime causes of German greatness has been the intellectual freedom of its universities. But in recent years that freedom has been significantly threatened by the State. In no sphere of thought is so much inquiry needed (and, therefore, so much free discussion desirable) as in that of social economics. But it cannot be said that all the members of German universities are free to develop their theories as to social economics in whatever direction they please.

There is no doubt that German methods of social and educational organisation have enabled dexterous and profitable use to be made of German science, and that they have prevented a great deal of intellectual effort from running to waste. But some amount of waste is inseparable from freedom of intellectual and social development, and it is on the latter that the welfare of the world largely depends. Much of the striking progress made by German industry and commerce seems to have depended on a fortunate conjunction of several things, viz.,—(1) the results of a long period of disinterested research; (2) the fact that German commercial development happened to be at a stage when it was still plastic and especially able to derive help from the wise application of State aid; (3) the enjoyment of great intellectual and moral prestige by a highly organised form of government, based on resolute discipline and on universal military service. But it is questionable whether this conjuncture will prove to be permanent. Science itself can be injured by the predominance of material aims; and commerce, as it grows, is apt to become more and more restive of State control, and even of some of the claims of purely national interest. But in any case the results of the present profitable conjuncture should not be traced to the methods of social and educational organisation alone. Those methods are only one of the factors in the case. The great spiritual and intellectual tradition of Germany has counteracted much that is inherently mischievous in any kind of extreme State control. But, as a well-informed writer has recently remarked—

> "Germany has paid a heavy price, not only for her military supremacy and political unity, but also for her intellectual and commercial equipment. In the realm of higher ideals, where once she was at home, she is now, according to the complaints of her own critics, a comparative stranger. In spite of the materialism of money-making and of excessive athletics in England, English life is broader, fuller, and more hopeful in its aims than German."

It would be a great mistake, however, to exaggerate the depth or the permanence of the materialistic tendencies which have affected parts of German thought and practical endeavour. There are nearly always two currents of feeling in national life, running in opposite directions, but each compensatory and corrective of the

other, and both due to some disturbance of the underlying conditions on which the social order hitherto existing has been based. Already there are many signs of an earnest and powerful reaction in Germany against any kind of blatant disregard of higher and more disinterested aims in education and in thought. In a memorandum, prepared before the meeting of the conference on Secondary Education held in Berlin in June, 1900, Dr. Ziehen, Director of the Wöhler-Schule (Realgymnasium) at Frankfurt-on-the-Main, deplored the too utilitarian tendency of some of the more extreme advocates of modern language teaching in secondary schools.* Professor Harnack has raised an eloquent protest against its ever being forgotten that twice in German history (*i.e.*, in the time of the Renaissance and again at the beginning of the nineteenth century) Greek studies accompanied and furthered a great spiritual revival, and helped to rescue German thought and feeling from dreary formalism, from scholasticism, and from lifeless Rationalism.† Professor Pfleiderer, in a recent paper, dwelt on the dangers involved in "a mechanically materialistic interpretation of history, rejecting all spiritual forces," but expressed his conviction that no such interpretation "would ever erase the ideals of humanity."‡ And, nearly twenty years ago, Friedrich Nietzsche gave utterance to his bitter scorn of commercial ambitions in words which are likely to find extravagant acceptance in many minds, if mere profit-seeking is ever set up as an idol of German education. "Everything that is great happens far off from the market. . . . Far off from the market dwell those who are discovering new things of value. . . . Where the market begins, begins the buzzing of the poisonous flies."‖

The strength of German education lies in its great tradition of disinterested devotion to knowledge; in the self-sacrificing labours of the teachers; in the cultivated interests which distinguish so large a proportion of German homes; in the strong personal interest which parents take in the intellectual progress of their sons; in the "plain living and high thinking" which have fostered through so great a part of the German nation a reverence for learning and a readiness to make personal sacrifice for ideal aims; in that "inner freedom of soul, that profound harmony of all the faculties" which Amiel said he had so often noticed among the best Germans; and in "the infinite capacity for taking pains" which (whether innate or the result of a long tradition of educational discipline) is characteristic of so many German minds. The perils of German education lie in the machinery of its State control; in the national tendency to fall into

* Verhandlungen über Fragen des höheren Unterrichts (Halle a. S 1901), p. 345–6.

† *Ibid.* p. 276.

‡ Paper on "The Religious Crisis of our Age," read at the International Council of Unitarians and other Liberal Thinkers and Workers (London, May 31st, 1901), *Times* report.

‖ *Also sprach Zarathustra*, Part I. p. 73.

extremes of opinion; in the fact that professional advancement depends on certain kinds of school training; in the rapid growth of wealth, which has already removed many of the old incentives to effort; and in the temptation to sacrifice higher educational aims to the desire for commercial success. It would be a misfortune if, through alarm as to our own commercial future, we were to copy what is hurtful in German education, and to neglect those deeper and harder things which have really made it great.

In a conversation with Mr. Beatty Kingston, in 1872, Prince Bismarck said, "You English should not be so hot to imitate Germany. Nations that imitate do not do much good. . . . Nations should keep their individualities. The system that suits us does not suit you, your habits, or your character. . . . You have your England ready to hand. . . . Take care that you do not spoil your people." * The real value of the comparative study of institutions lies, not in the discovery of devices or appliances which can be transferred from one country to another (though the frequent possibility of such a transference should not be ignored), but in realising what is the spirit which has made a foreign institution great, and then in finding means to cultivate that spirit at home, if so be that it is needed to repair some weakness in the national life. Great institutions can rarely be transplanted, but one country can catch from another something of the spirit and purpose which animate every great institution. And such spirit and purpose will naturally find expression in very different forms of organisation in different countries. Prince Bismarck felt this strongly, and we are told that "nothing in his career angered him more than to meet people who wished to transplant English institutions promiscuously into Germany."†

The root of the matter is that in Germany there is a much stronger and more general love of abstract knowledge than there is in England. Professor Perry, speaking last autumn as President of the Institution of Electrical Engineers, said that "there was one qualification which an electrical engineer must have, and without which all others were useless—he must love to think about and work with electrical things, not liking them simply because of the money he could make through them, or even because of the name he might make before the world."‡ That is the first essential of all scientific work and the secret of all scientific enthusiasm—love of the thing for its own sake. From this there follows a readiness to talk about it, a keen and constant interest in learning more about it, a habit of keeping it always in mind and seeing everything in relation to it, and it in relation to everything. This strong artistic interest in the study as a study puts to flight any silly shamefacedness

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* *Conversations with Prince Bismarck*, collected by H. von Poschinger; edited by S. Whitman, p. 103. (London, 1900.)

† *Ibid.* p. 228.

‡ *Times*, November 9th, 1900.

which might otherwise prevent a man from alluding to his own special sphere of work and thought. The reverse is the case when the maxim "No 'shop' at mess" has the effect of discouraging scientific professional studies at other times as well. The influence of keen and general interest in the scientific bearing of every part of a great calling may be felt throughout the whole of a profession and, extending far beyond the limits of a single profession, may in time affect the tone of national life. This has happened far more in Germany than in England. And America is wisely following the German example.

The love of knowledge leads to a clearer sense of its value, and this again to a greater capacity for skilfully applying knowledge and to a readiness to submit to those severer kinds of educational discipline which are the necessary preparation for knowledge. Sir Christopher Furness, referring to the United States Steel Trust and its possible effects on British trade, said "It seems to me that there is only too much truth in the contention that our managers of works do not sufficiently encourage the study of technical subjects; that there is a tendency to give preference to less intelligent 'rule-of-thumb' men; and that our managers are not alive to the scientific requirements of the age and to the great advance made by America and Germany."* Another leading man of business, Sir A. L. Jones, of Liverpool, has recently referred to another matter closely connected, both as cause and effect, with the facts pointed out by Sir C. Furness.

"At one of our establishments" [he writes] "I employ some 250 clerks, and it is always a great sorrow to me that so small a proportion of the rising generation seem to be imbued with any real conception of what is necessary to success and the earnest assiduity necessary to accomplish it. It is here that we are likely to be most easily surpassed by young men of certain other nationalities. . . There are countless young fellows, one discovers, who are quite content to go through a certain amount of routine in a haphazard way, but are apparently unable to realise that commercial prosperity and success are only attained by making exceptionally good use of one's time, and more especially in one's younger years, when one's power of concentration is more acute, the mind is more receptive, and the memory has a greater faculty of retention."†

Mr. Thomas F. Blackwell (Chairman of the Council of the London Chamber of Commerce), writing on the same subject, remarks‡:—

"There is need for the younger members of the commercial community to give more concentrated attention to their business. At present their interest is too much devoted to amusements, and they are too anxious to leave their offices and workshops for cricket, tennis, football, and golf; and though fresh air and exercise are necessary for hard work, the clerks and workmen of to-day show too much interest in their pleasures and too little concern for their daily task. The men who made and extended English trade gave their whole time and interest to business in the same way that Germans and Americans do to-day."

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* *Daily Mail*, May 1st, 1901.
† *New Liberal Review*. March, 1901. p. 961.
‡ *Ibid*

It is of course far from being my meaning to suggest that absorption in business as business is in itself a very worthy form of life, or to imply that the best hope for the future of the world lies in each nation in turn applying itself with an intenser form of concentration to money-making in order to excel "its rivals." If that were the only prospect, there would be a good deal to be said in favour of slacking off and enjoying as much as possible of leisure and outdoor exercise so long as things allow. Nor must it be forgotten that the circumstances of life in large cities, and the great distances which many workers have to travel from home, have greatly changed the conditions of the problem. And it is often much harder now than it used to be before the growth of large joint-stock businesses, for a young man to find an opportunity of rising, *fairly early in life*, to a position of great responsibility or of masterhood. Many young men seem to see before them an almost interminable vista of subordinate clerkships with small annual increments of salary. Feeling that there is very little to be gained by extreme application to business out of hours, they prefer to "play for safety," to be on good terms with their companions, and not to excite the jealousies which are often aroused when marked and exceptional zeal is shown by a subordinate. But things would be very different if it were more the fashion in England to take an *intellectual* interest in business. Much depends on the attitude of managers (not merely of the heads of firms) and on the public opinion inside a business house. Hundreds of young men would develop a keen interest in their business if it were more the "thing" to study it, and if it were more generally the case that the tone of the house favoured such studies. At present much of the interest which might find a natural and pleasant field of exercise *within* the business (to the great profit of the business, too) goes to things outside the business. Everyone will approve the habit of taking healthy exercise in the way of games, but something besides love of exercise must account for the fact that one hundred and fifteen thousand persons paid for admission to the Crystal Palace this year to see the final game for the Association Cup. In the prospectus of an Anglo-Swiss school for boys, written in French and English in parallel columns, a correspondent found that "the English was an exact translation of the French in all but one significant point. *Cours commercial* had been ingeniously rendered 'large playing field'—I suppose those who drew up the prospectus knew that Swiss and English parents respectively love to have it so."*

The late Bishop Creighton, in an address prepared for the Midland Institute at Birmingham, touched on the national characteristic which we are now finding so inconvenient in many of its practical results.

"To put it briefly," he wrote, "my opinion is that the great defect of England at present is an inadequate conception of the value of knowledge

* Rev. A. T. Bannister, in *Times*, May 1st, 1901.

in itself, and of its importance for the national life. I wish to see this remedied, and it cannot be remedied till it is recognised. It will not be amended by improvements in our educational system; for systems are only so much mechanism, and depend on the force which works them. If there is a desire for knowledge, it is not difficult to find out proper means of imparting it. If there is little effective desire for knowledge, the invention of easy means for imparting a beggarly minimum will check rather than promote the desire.

"When I say that in England there is an inadequate conception of the value of knowledge, I do not mean that England has ceased to produce eminent men in the various branches of learning, or that it does not recognise them. Knowledge will always have its votaries among a vigorous people, and its claims will never be forgotten. What I mean is that the average Englishman thinks very little of the importance of gaining for himself as much knowledge as he can for the purpose of leading his own life efficiently. If you are inclined to demur to that statement I would ask you to consider what are the qualities on which Englishmen pride themselves. You know the familiar list—vigour, energy, practical capacity, dogged perseverance, outspokenness, straightforwardness, and the rest. These are all excellent qualities, but you will observe that they are all practical and not intellectual. They omit all reference to thought and its processes, to knowledge and its reward. The point of view towards life which they indicate is briefly this: That must be done which shows itself to need doing; the choice of means to do it is of secondary importance; the great thing is to set to work to do it, and do it hard with the determination to succeed. . . . I take it that the average German would put knowledge and assiduous application in the forefront of the national qualities of which he was proud. His attitude towards life would be that knowledge was first necessary to show you what you could best do; then, that the constant application of that knowledge and its assiduous increase would lead you to such success as you deserved. . . . The English view makes the least appeal to the intellectual qualities. I think you will agree with me that we must bestir ourselves to put knowledge back into its due place among objects of pursuit. . . . We must be prepared to add to our store of capacity, and I see no way to add to it except by increasing our knowledge. Let us do all that we have done; let us keep our existing qualities; but let us add to them that which increasing knowledge can bring. This knowledge cannot be stored at the top only; it must be diffused through every part of our common life. We need not only the scientific inventor, but the employer who is quick to perceive and apply what has been discovered, and the workman who can so far understand its utility as to wish it to have the best possible chance."*

But an increased love of knowledge is not easily conjured up in such a way as to permeate the mass of public opinion, and thus to modify the intellectual atmosphere in which the various forms of educational, professional, and commercial life are carried on. Such a national respect for knowledge is a matter of slow growth. It represents untold sacrifice in the past, and only sacrifice can win it. Once fairly started, it makes its way, and German and French experience, not to speak of that of other countries, proves that a good deal can be done to further its growth (when that growth has once begun) by means of educational organisation; by making entrance to professions dependent on completing the full course

* *Contemporary Review*, April, 1901, "A Plea for Knowledge."

at an approved kind of school* ; by making the teaching profession one branch of the Civil Service and thus securing the individual teacher from all the financial anxieties attendant on school-keeping by private enterprise; and by requiring, in the case of every teacher, a high level of general attainment, if not also of proved professional skill. But all these forms of State organisation (which have both bad and good results) depend on a definite acceptance by the nation, or at least by an overwhelming majority of its citizens, of a clearly-formulated national aim. And this it is which, both for good and for evil, England has not had for many generations. Furthermore, such an aim cannot be carried like a resolution at a public meeting. It must be the outgrowth of a long process of national thought and experience—sometimes of national agony. Yet even that terrible experience does not necessarily ensure national unity with regard to the spiritual and intellectual things which lie at the base of national life. It may but serve to reveal, more clearly than before, a deep fissure in national ideals. And (if I may touch on a matter which seems to me to lie very near the heart of the whole difficulty) can it be said that the present phase of intellectual development in the world is likely to win over to the cause of knowledge a nation which seems almost constitutionally averse, in the mass, from organised intellectual pursuits? Across how many avenues of thought is there written at present the warning "No thoroughfare?" Is there not now an instinctive shrinking on the part of many minds from embarking on intellectual difficulties, from which they feel that they could hope to

* It is noteworthy that Adam Smith, whose practical influence was unfavourable to the encouragement of higher education by the State, held that "the State might render the study of science and philosophy almost universal among all people of middling or more than middling rank and fortune; not by giving salaries to teachers in order to make them negligent and idle, but by instituting some sort of probation even in the higher and more difficult sciences, to be undergone by every person before he was permitted to exercise any liberal profession, or before he could be received as a candidate for any honourable office of trust or profit. If the State imposed upon this order of men the necessity of learning, it would have no occasion to give itself any trouble about providing them with proper teachers. They would soon find better teachers for themselves than any whom the State could provide for them."—(*Wealth of Nations*, Bk. V., Chapter I.) Later experience has not confirmed the latter and more sanguine part of Adam Smith's opinion. By his opposition to State endowment of higher education he rendered nugatory the other part of his plan, which, if carried out, would probably have established in England the same kind of system of intellectual training that was developed during the last century in Germany. But, as Adam Smith frankly stated that his reason for desiring the establishment of "the study of science and philosophy" in this commanding position was that they were "the great antidote for the poison of enthusiasm and superstition," and that "when all the superior ranks of people were secured from that poison, the inferior ranks could not be much exposed to it," those who differed from him fundamentally as to what was "superstition," and as to the value of "enthusiasm" (calling each by a very different name) cannot be blamed for having been unwilling to adopt his prescription.

find no issue, but amid which they fear that many of their dearest hopes might come to dismal shipwreck? Is not the English mind frequently strong both in its gasp of immediate facts and in its instinct as to the bearing of those fundamental principles which govern ideals of conduct but often lie outside the reach of exact verbal expression? And how often does it not happen that, with this combination of practical sagacity and of almost mystical insight, there goes an inability to excel in the intermediate sphere of thought, namely, in the region of logical analysis and abstract generalisation? * But this is the region to which speculative thought necessarily addresses itself, and it is exactly here that so many of the operations of scientific reasoning are carried on. A more natural aptitude for abstract thought (by no means unfrequently accompanied by a far less sensitive perception of the "master-light of all our seeing") characterises the German mind, and has been the cause of a much more general training of the philosophical interests there than here. The ordinary educated German or Frenchman is far more at home than the Englishman in the sphere of abstract ideas. The Englishman has gained much, and has also lost much, by this lack of aptitude for abstract reasoning. At present we are seeing how much he has lost, and is likely to lose, by reason of this mental characteristic, just as we are also seeing how much he is in danger of losing by reason of his insularity and individualism. Novalis said that "Every Englishman is an island." But insularity and individualism are exactly the qualities which, under other conditions, have favoured the Englishman. Have there not been, more than once, conditions of human thought when Englishmen have gained much, and preserved much that they might otherwise have lost, through keeping for a time outside the meshes of intellectual speculation? Has it not, in the course of history, proved more than once a gain to civilisation that England should have held herself rather separate from the current fashions in Continental thought, thus keeping fresh and free to take her place in the European movement at some later stage? It was said, not of one of our worst times, that

> "I' the world's volume,
> Our Britain seems as of it, but not in it."

Yet a great change has come over the whole aspect of things in consequence of the advance of science. Scientific method, applied to all the undertakings of men, is, as Professor Huxley said in 1894, the "white ant" which is eating away the old conditions and the fortifications of the old order. No nation can stand aside from this world-wide movement, which is applying new and searching tests to whatever is customary and traditional. The habit of abstract reasoning, and strong interest in intellectual pursuits, have become necessary conditions for entering into possession of that fund of

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* *Cp.* Mr. Bernard Bosanquet on "The English People," in the *International Monthly*, January, 1901.

knowledge, and for acquiring that sense of the value and significance of knowledge, which have become indispensable to every great nation in this age of scientific organisation and research. Practical necessity is driving Englishmen to the conviction that a far greater proportion of the nation than heretofore should be so trained at school as to take an active intellectual interest in things, and quickly to discern, and, when necessary, counteract new tendencies in economic and ethical opinion.

Some are likely to feel that any such great change in our intellectual life would imperil much that is most valuable in English judgment. The instinctive dread of this risk—perhaps a well-founded dread—seems, in point of fact, to be one of the causes which has done most to hold us back from going with the rest of the world in educational reform. But has it not become absolutely necessary for us to go forward quickly, lest we should drop dangerously behind? We cannot afford to say *nec vitia nostra, nec remedia, pati possumus.* And mere imitation of current intellectual fashions is the last thing which would be the aim of an education really characteristic of Englishmen. Do we not need to gain more power of expressing, to ourselves and to the world, what we instinctively feel to be the points in which our national attitude towards the problems of life and conduct differs from that of most of the other nations with whom we deal? English thought and action are apt to aim at a reconciliation of contraries; at the combination of apparently converse tendencies; at the rejection of each extreme, if taken by itself. Such an aim needs constant revision in the light of new knowledge and of the changing relations between man and man, and between race and race. Liberal education will help us to find confidence in, and expression for, what Pascal called "the union and harmony of two seemingly opposite truths."

But, just as in England we need to strengthen the intellectual side of our system of education and of our national life, so in Germany there are signs of the converse tendency and of a growing opinion that their school system and its accompanying forms of State control have over-developed the purely intellectual side of things, and have failed to do what is necessary in regard both to physical training and to character-building. Germany and England stand in some respects at different ends of the scale, and each needs to move in an opposite direction in order to reach the mean. But it is one thing to feel the need of such a change and quite another thing to accomplish it. Each system has the defects of its qualities. And each is forced forward along the old lines by the momentum of the past, by the force of vested interests, and by the natural unwillingness of the rising generation (and of their parents) to incur the risk involved in standing aloof from the routine of higher education prevailing in their respective countries at the present time. In Germany, however, the results of standing aside from the esta-

blished system of education are much more serious than they are in England.

There is at the present time much unrest in German opinion on the subject of secondary education. What is most significant in this unrest is that it is due, as in France and elsewhere, to the growing urgency of grave social problems and to the conviction that the great changes which have come over modern life and over international relations call for some corresponding changes in the courses of study required in secondary schools, and also for a new spirit in this important part of national education. The effects of this unrest show themselves in animated debates on questions of curricula, time-tables, and methods of teaching; but its real causes lie far below the level of merely administrative regulation or of pedagogical contrivance. They are ethical, social, and political rather than "educational" in any narrow sense. But they necessarily show themselves in the form of inflammation of parts of the school system, because national education is always an expression of what are or have been the ethical, social, and political aims of the people which it serves.*

The discussions about secondary education in Germany raise a great number of issues, the more important of which may be classified as follows:—

(1) How far does the present system of secondary education favour, or obstruct, the growth of social unity or of social equality? This point raises the question as to the junction between elementary and secondary schools.

(2) Are classical studies artificially protected by the present system of school privileges? Is it desirable to make sweeping changes in the courses of study, and to aim at replacing classical education of the older type by some form of non-classical education? This raises the question of Latin and Greek, and of the place of French and English and of science in the course of instruction given in secondary schools.

(3) Do the secondary schools take sufficiently into account the needs of practical utility? Ought the courses of study to be reformed with the frank intention of meeting the practical requirements of modern business and of modern government? This raises questions of national aim and of the value to be assigned, in a general view of national well-being, to material wealth and commercial prosperity as compared with pre-eminence in intellectual studies and with devotion to learning for its own sake.

* On the social and ethical issues involved in many of the problems which at present are prominent in discussions on German education, see Rudolf Lehmann, *Erziehung und Erzieher* (Berlin, 1901); Professor Dr. W. Münch, *Ueber Menschenart und Jugendbildung* (specially Chapter X.) (Berlin, 1900); Professor Dr. Paulsen, on *Die Wandlungen des Bildungsideals in ihrem Zusammenhange mit der sozialen Entwickelung* (Comenius-Blätter, 1899); Dr. Reinhardt, on *Die Bedeutung des gemeinsamen Unterbaues für die höheren Schulen* (Comenius-Blätter, 1899); Paul Natorp, *Sozialpädagogik* (Stuttgart, 1899); Professor Dr. W. Rein, *Am Ende der Schulreform* (Langensalza, 1893).

(4) Is it the tendency of the whole system of secondary and higher education in Germany to over-stimulate the desire for academic culture, and to divert, to an undue degree, the brain of the nation from practical callings to more literary occupations? Some Germans think they have too much secondary education, just as some Englishmen think we have too little.

(5) Are the results of the system satisfactory in regard to the formation of character, and do the German secondary schools fail in giving an all-round physical training? Under this head there is a disposition to look, with much more interest than was shown twenty years ago, into the results of English public-school education.

(6) Is there enough elasticity in the organisation of secondary education in Germany? Should much more freedom of experiment be allowed? If so, how can such freedom be combined with the present State regulations for the admission of students to universities, technical high schools and liberal professions? Has the law as to "military service for one year as a volunteer" injured the interests of higher education—(1) by attracting an undue number of boys to secondary schools in order to win the privilege of so serving, and (2) by causing an exodus of boys from school at a point two-thirds through the full course of those secondary schools whose curriculum is designed to cover a period of nine years? Some of these questions are of course almost the converse of those often asked in regard to English secondary education. One distinctive mark of the latter, as compared with its counterpart in France and in Germany and on the Continent generally, is its freedom from close State control.

(7) Does the experience of the last few years confirm the hope that the experiment known as the "Frankfurt curriculum" may provide a satisfactory solution of the difficulty which presses on so many smaller towns, viz., how to maintain concurrently the different types of classical and non-classical schools which are normally required by the different needs of different callings? This point raises the question as to the age at which Latin or Greek ought to be begun, and whether in the early years of a fully classical education the study of French should precede Latin or that of Latin precede (as at present) the study of French.

It will thus be seen that all the more important questions, which underlie the present movement of opinion on the subject of secondary education in England, are under discussion in Germany also. In fact the problem, though it has special aspects in each country, is really an international one; that is to say, it is not only perplexing all the leading nations, but it arises in large measure from the new relations in which different peoples stand to one another, and from the facts that (owing to the practical shrinkage of distance through improvements in the means of communication) the commercial and political interests of different peoples are becoming more intermixed, and waves of opinion and of intellectual or social change are much more rapidly transmitted than heretofore over

the whole world. The result is that secondary education, always sensitive to changes in the intellectual atmosphere, is in many places almost in a feverish state.

At this point, however, a few words are necessary in order to summarise the main features of the present organisation of German secondary schools.* For the sake of brevity and clearness I will take Prussia as the type, reminding the reader, however, that there are various differences between the secondary school systems at work in different States of the German Empire. These varieties have been, and are, a great source of strength to German education.† The system of Baden, in particular, may be cited as specially full of valuable suggestion.‡ But the Prussian system is on a much larger scale than that of any other single German State, and has been the focus of a much more extended and varied debate, and therefore of a more interesting literature. Moreover, the unity of the German Empire has naturally brought about a greater assimilation between the systems of secondary education in the different States; and in the accomplishment of this unity the Prussian schools played no inconsiderable part. A recent French writer has expressed the opinion that, of all German States, Prussia has come nearest to perfection in her school organisation, and that her achievement is due to the fact that, in the sphere of education as of politics, she has known how to utilise the results of individual effort with the utmost foresight, energy and persistence, and at the same time to encourage all kinds of individual initiative.¶ I cannot, however, concur in the judgment that Prussia has in point of fact encouraged *all kinds* of educational initiative. It would indeed have been contrary to her express purpose to do so. Any conclusions as to the merits of Prussian secondary education must largely depend on our view of the general principles underlying Prussian State organisation. But all will agree that, *granted the aim in view*, Prussia has shown an unrivalled concentration of purpose in devising a consummately efficient machine to produce the intended result. It is doubtful, however, whether that result is not considerably different in some important respects from what

* For a detailed account of the system the reader is referred to *Special Reports on Educational Subjects*, Vols. I. and III.; to Dr. Russell's *German Higher Schools* (Longmans: New York and London); and to Professor F. Paulsen's *Geschichte des gelehrten Unterrichts auf den deutschen Schulen und Universitäten*, Second Edition (Veit: Leipzig)—the last-named being a book to which all foreign students of German higher education are deeply indebted.

† *E.g.*, The Saxon Secondary Schools never had the Abschlussprüfung, which is now to be abolished in the Prussian Secondary Schools.

‡ See Mr. Hammond's paper on *The Higher Schools of the Grand Duchy of Baden, their Development and Organisation*, in Vol. III. of *Special Reports on Educational Subjects*. (London, 1898.)

¶ A. Pinloche, *L'Enseignement Secondaire en Allemagne*. (Paris, 1900.)

was in the mind of Wilhelm von Humboldt and other founders of modern Prussian education.*

(*a*) There are in Prussia three main types of secondary school—the fully classical, the semi-classical, and the non-classical. The first of these (the Gymnasium) requires all its scholars to learn (of course in addition to many other subjects) Latin and Greek as well as French. The second type (the Realgymnasium) teaches Latin, French and English, but not Greek. The third type (the Oberrealschule) teaches French and English, but no Greek or Latin. Each of these three types of school has a very carefully designed course of instruction which is planned to extend over *nine* years. There are also three sub-types of school (classical, semi-classical, and non-classical), each with a course of instruction planned to extend over *six* years. The course of the Progymnasium corresponds to that appointed for the first six years of a Gymnasium. The course of the Realprogymnasium corresponds to that appointed for the first six years of a Realgymnasium. The course of the Realschule generally corresponds to that appointed for the first six years of an Oberrealschule. Of these sub-types of school, the Progymnasien and the Realprogymnasien are comparatively unimportant. But, in point of numbers, the Realschulen with their six years' course are more important than the Oberrealschulen with their course of nine. It may be added that school fees are comparatively small, but that the secondary schools are not free.

(*b*) The new curricula, which were approved for the Prussian Higher Schools, in April, 1901, will be found in full in the appendix to this chapter. Here it will suffice to say that, according to the normal curriculum, Latin is begun in the Gymnasium and Progymnasium in the lowest class (*i.e.*, at nine years of age), French two classes higher (*i.e.*, at eleven), Greek a class higher still (*i.e.*, at twelve). Much attention is paid to instruction in the mother tongue. All boys learn some elementary science, but at no point do the lessons in natural science absorb more than one-sixth of the weekly lessons. In the Realgymnasium and Realprogymnasium Latin is begun in the lowest class (*i.e.*, at nine years of age), French two classes higher (*i.e.*, at eleven), and English, a class higher still (*i.e.*, at twelve, or at the same point at which a boy in a fully classical school begins Greek). Here, again, much is done for the teaching of the mother tongue. All boys learn natural science, but never more than one-sixth of the week's lessons are given to it. In the Oberrealschule and Realschule, French is begun in the lowest class (*i.e.*, at nine years of age), and English three classes higher (*i.e.*, at twelve). Full provision is made for systematic teaching in the mother tongue. Natural science is taught all through the school (and in the four highest classes of the Oberrealschule) nearly one-fifth of the week's lessons are given to scientific subjects.

Other forms of curriculum are permitted under approved con-

* *Cf.* on this point Dr. Paul Cauer's *Staat und Erziehung.* (Kiel and Leipzig, 1890.)

ditions, as will appear below, but the normal arrangements are those described above. Increasing freedom, however, is being permitted in German secondary education.

(*c*) It will be seen that the basis of Prussian secondary education is linguistic discipline. No secondary school in Prussia is allowed to make laboratory or other work in natural science the backbone of its curriculum.* Drawing is taught in all the schools, but there have been no developments in the direction of making various kinds of manual work and of practical constructive training the centre of the curriculum. In a word, the Prussian secondary schools are required to adhere to what, in spite of its modern dress, is the old tradition of a literary education. Some of the most original and revolutionary experiments in secondary education are not being made in Germany at all. Prussia holds firmly to the old principle that linguistic discipline is the best capacity-*sifter*. Whether it is so or not depends on the type of capacity and the range of knowledge which the State desires to encourage and to secure for the higher functions of national life. Those who believe that some valuable and necessary types of skill and power are best developed by manual and practical exercises of various kinds (literary discipline taking a subordinate place in the curriculum) will regard the German system of secondary education as far from an ideal capacity-*catcher*. It is bound to pass over, or to spoil, many whom they would regard as well-endowed by nature for the most responsible kinds of public service. Moreover the prestige of a great linguistic system of education affects people's unconscious standards of judgment. And "protective mimicry" is a force in the sphere of education as well as in other parts of nature. But those who are convinced that, on the whole and with few exceptions, linguistic discipline is the surest (as well as the cheapest) instrument for selecting the quickest and cleverest brains, will find in the Prussian system a well-thought-out and admirably effective method of securing a capable succession of men for the service of learning and "for the use of the King." It should not be forgotten, however, that the present supremacy of a linguistic education is challenged by many powerful enemies. Prussia, it may be said, has put all her eggs into one basket. Needless to say she has packed and sorted them with the utmost skill. But the fact remains that the whole system is adjusted to one general end—the high development of certain types of mental power through varied processes of training predominantly literary in their character.† The system leaves very

* The Royal Decree of November 26th, 1900, directs that in future practical demonstration and experiment must take a more prominent place in the teaching of natural science in Prussian secondary schools. It also directs that, in the classical schools, all pupils who intend to proceed to the study of applied science, mathematics, or medicine should make constant use of the optional instruction in drawing.

† It should be mentioned, however, that the physical and other exercises of military service play an important part in German education, and correct many of the school tendencies.

little liberty for the compensatory growth of quite other kinds of training. Yet it is often through these temporarily unfashionable or neglected kinds of training that new and much-needed types of character are formed. It was a German (Friedrich Nietzsche) who said the bitterest things about the "Country of Culture."* He called it "the home of all paint-pots," and said that he would rather be "a day-labourer in the under-world and amid the shades of long-ago" than dwell in it. Those words were written in 1883. In the same year our own Richard Jefferies published *The Story of My Heart*, in which he too pleaded, as poignantly as Nietzsche but with far less bitterness of spirit, against erudition as an ideal of life, and still more against the imparting of erudition as a means of "education."† Are there not indeed many other things to be taken into account in framing an "educational system" besides what will produce the kind of material likely to be most immediately profitable to the political, commercial, or industrial interests of the State? Should we not also regard the increase of individual human happiness as one most necessary aim? Granted, of course, that due precautions must be taken to secure the civic virtues and self-sacrifice which will best defend the communal life. But, if this be allowed for, is it not the chief task of any true "system of education" to develop individuality and variety of aptitude, interest, and character, and to keep open as many doors as possible for new and as yet unforeseen developments? For those who love the study of language and of literature, and to whom books and conversation and study are the most natural means of self-culture, these linguistic schemes of education are appropriate and beneficial, provided that they do not involve over-pressure and cramming, and that they compel the person so educated to realise at every point that in many other kinds of skill and culture he is unspeakably inferior to many who have not been "educated" as he has. But are there not signs that this immense machinery for more or less literary education tends to produce more than is wanted of a certain kind of aptitude and knowledge? Was there ever a time when the world needed more daring experiments in education or when it was more undesirable that one dominant kind of training should be taken as affording a sufficient touchstone for merit? We are in some danger of inducing a sort of intellectual nausea in many minds which would have responded to another kind of training. The German system of education, and those other systems of education which have been modelled on the German, seem calculated to produce what is organisable and imitative rather than what is creative and independent. Yet at a time like the present, which is a period not only of national and social consolidation on a vast scale, but also of new departures and of readjustment of aims and principles, both sets of qualities are necessary; and the habit of subordination

* *Also sprach Zarathustra*, "Vom Lande der Bildung."
† See especially Chapter VIII.

without the gift of initiative may prove even more perilous in the long run than the gift of initiative unaccompanied by trained power of subordination. Should it not therefore be the chief aim of education to endeavour to produce that kind of independence which is never lacking in fresh initiative and in the power of taking fresh views of things, but is at the same time always conscious of the wisdom of the past and ever ready to subordinate its individual pleasure to any swiftly discerned occasion of public need?

(*d*) Germany has devoted more thought and labour to the science and art of teaching than any other nation in the world. Throughout their system everything is considered. As little as possible is left to chance. They regard the questions how a subject should be taught, in what order it should be taught, how much time should be allowed for teaching it, and what other subjects should be taught with it, as being of great consequence as well as of extreme difficulty. Each class in every school has its appointed task. All the boys in that class learn all their subjects together. There is no re-classification for different subjects as there is (often most beneficially) in English schools; and, under normal conditions, a boy spends one year in each class before he is promoted. Thus many of the questions of curricula are greatly simplified and lend themselves to exact investigation and to comparative analysis. Some Germans, indeed, think that the State has been almost fussy in its investigations into these matters, and regard the detailed revision of school time-tables as having been carried, during recent decades, to an undesirable point.* However this may be, German education has undoubtedly derived benefit from the systematic and searching attention paid to these questions of educational method. They leave nothing to rule of thumb. They know how much depends on having first-rate machinery and on keeping it well-adjusted. They think much more of what is going on inside their schools than we do. Educational interest is the real cause of their laborious study of methods. But the results of that study are not confined to the schools. A surprisingly large number of Germans possess the power of skilfully teaching other people the details of some practical business; and their pupils are as prepared to learn as their instructors are to teach. This is an educational aspect of German industry and commerce which is some times overlooked. In a nation of schools, nearly every department of activity becomes in a sense a school too. Those who possess the experience have cultivated the knack of imparting it. They are not inarticulate and unable to teach their juniors what they themselves do so well. They have been trained to think about methods of teaching and to break up their knowledge in such a way as to impart the component parts of it in the order, form, and measure best adapted to the mental preparation of the learner whom they desire to teach. In an educational atmosphere, school and workshop

* *Cf.* Professor Friedrich Paulsen, *Die höheren Schulen und das Universitäts-studium im 20 Jahrhundert.* (Braunschweig, 1901.)

and office all co-operate in giving the learner an intelligent command of the principles and practice of his business.

One great advantage which the Germans have derived from their modern system of education (and especially from their study of methods of teaching) is an increased power of expressing themselves, particularly in their own language. In this they fall behind the French, but they succeed far more than we do in giving the ordinary boy facility in expressing his ideas. Not that the Germans can boast so great or so varied a literature as the British can. Schoo's do not seem to produce genius, but they make very economical use of ordinary material. England has much to learn both from France and Germany in methods of teaching the mother tongue. In all the German schools great attention is paid to German composition and expression (oral and written), to German literature and German history, not to speak of the physical and political geography of the Fatherland. These studies are found to form an excellent basis for, and accompaniment of, more advanced instruction in languages, history, geography, and literature.

(*e*) Of late years some, though by no means all, German schools have greatly distinguished themselves by their success in teaching modern languages. This development is more important from an educational than from a purely commercial point of view. The study of living languages has not been taken up so enthusiastically by the teachers because the knowledge of French or English "pays in business," but because many of them believe that modern languages, taught as *living* languages and not as dead ones, may be made the instrument of a new and much-needed type of liberal education. On its best side the movement is really part of a revival of the Humanities in education as against the sterilising influences of mere utilitarianism. But it has a practical side as well, because it is evident that the power of fluent and accurate expression in two living languages besides one's own is, so far as it goes, a good equipment for certain kinds of modern enterprise. In our own country the Modern Language Association is doing an excellent work in directing public interest to the educational and political importance of first-rate instruction in living languages, as well as to the commercial value of such studies.* Sir Hubert Jerningham recently quoted a saying of Charles V. that "a man who knows four languages is worth four men"—an epigram which, of course, is only true if, in addition to linguistic skill, the man has character, insight, imagination, industry, and sympathy to correspond with it. But, provided that a youth has the force of character, the energy, the power of bearing responsibility, and the good judgment, without which mere facility in languages is of little permanent use, it will be admitted that, for pushing trade in foreign parts, a man who can speak three languages fluently and intelligently is often worth a

* See report of a meeting held on June 26th, 1901, in the *Journal of Education* for July.

great deal more than a man who can only speak his own. But the qualities that lie behind mere facility in expression are the really indispensable things in practical life. The Germans do not aim at cultivating a "courier-knowledge" of languages at the expense of the more valuable qualifications—ordered knowledge, perseverance, and trained imagination. Their young commercial men are brought up in the habit of mind which tries to realise what other people are likely to be wanting, and which instinctively applies itself to the best method of finding that out. But this habit of mind is not produced by premature specialisation in commercial technicalities. It is a result of interest in the subject, and of scientific study of the subject as part of a general education. The beginnings of the habit may be learnt at school, provided that the teacher is himself actively interested in the subject and himself exemplifies what he teaches in his own attitude of mind towards his subject. But it is the actual experience of life, and the example of fellow-workers, that do most to form such a habit of mind. Scientific interest in ways of doing business skilfully and economically diffuses itself throughout the commercial classes of a nation by a slow, permeating process—one man, consciously or unconsciously, teaching others. Schools are, after all, but a small part of the educational influences at work in national life.

(*f*) The German schools could never have become what they are to-day had it not been for the high intellectual qualifications of the teachers, and for the care taken to weed out those who are lacking in professional aptitude for the work of teaching. In Prussia no one may teach without the leave of the State. In England anyone may teach who can get anyone to accept his teaching. The distinction is fundamental, and shows how radical is the difference between the Prussian and the English view of the subject. Prussia organises her schools as she might organise an army. England regards teaching as an aspect of national life which necessarily involves many elements over which the State, as a State, should have no direct control. Prussia thinks of the *intellectual* service of the school. England is apt to agree with Mr. Ruskin that "education does not mean teaching people to know what they do not know, but to behave as they do not behave."* England lays more stress on the character-forming parts of education, Prussia on the mind-forming parts. Neither nation would deny the need for both elements in school training, but as a matter of fact each is apt a little to neglect that part of education which seems to it the less important. Any "professional training" of teachers must really rest on what kind of qualifications we think it most essential that a teacher should possess. Many Englishmen think that the influence of a master over boys out of school hours is far more important than his influence over them through their lessons. The Prussian takes the converse view. Though he is far from overlooking the importance

* *Crown of Wild Olive*, Lecture IV.

of character in education and the influence of example, nevertheless he habitually thinks of the teacher as at his desk teaching. He focuses his attention on this side of the teacher's work, and spares no effort to secure his doing it scientifically and well. The English schoolmaster has a very different idea of the range of his duties. The result is that he is generally much less learned than his Prussian counterpart. He is often far less adept in imparting what he knows. But, on the other hand (if he is a good schoolmaster), he has a far greater personal influence over his pupils. He is much more their friend than the Prussian schoolmaster (except in rare cases) can become. And he devotes an amount of strength, time, thought, and unselfish devotion to the *pastoral* side of his office, which hardly any Prussian schoolmaster would think it part of his duty to give. Here again each system has its good points, and its great defects. Our schools are strong where the Prussian schools are weak, and weak where they are strong. It would be a good thing if each could take something from the other.

(*g*) The Gymnasium (or fully classical school with a nine years' course) is by far the most important type of secondary school in Germany. This is due as well to social as to historical reasons. The Gymnasium is the favourite school of the higher classes in society. For years it enjoyed the sole right of preparing boys for the university, and therefore for all the learned professions, and for the higher offices in Church and State.* No other type of German secondary school as yet (whatever may be the case in the future) touches the Gymnasium in point of social or intellectual prestige. The following table shows at a glance what a pre-eminent place is held by the Gymnasien in Prussian secondary education. It will be seen that in Prussia there are more boys in the Gymnasien than in all the other types of secondary school put together, and that within recent years the attendance at the fully classical schools has been growing fast.

NUMBER OF BOYS IN PRUSSIAN SECONDARY SCHOOLS (EXCLUDING PREPARATORY DEPARTMENTS.)†

Winter Half-Year.	Gymnasien.	Pro-gymnasien.	Real-gymnasien.	Real-pro-gymnasien.	Oberreal-schulen.	Real-schulen.
1895-6	76,078	4,544	24,534	6,465	10,288	19,675
1896-7	78,011	5,326	23,719	6,061	11,157	20,665
1897-8	80,027	5,225	23,127	3,978	12,285	23,837
1898-9	83,272	5,929	20,956	2,559	12,071	27,232

Thus the non-classical schools between them contained 39,303 boys; the semi-classical schools, 23,515; and the fully classical schools, 89,201. And the Gymnasien alone have 83,272 boys as

* For the changes which have been made, and are still in process, in this regard, see below.

† This table is based on the statistics in the *Statistisches Jahrbuch der höheren Schulen*, 1900–01. (Leipzig: Teubner.)

compared with the total of 68,747 in all the other types of school. During the years covered by the table just given the attendance at the semi-classical schools (teaching Latin, but no Greek) showed a marked decline. This was due to a number of causes, possibly temporary in their character. The Berlin conference on secondary education held in 1890 showed how strongly certain currents of opinion were then running against the Realgymnasien as representing a "false compromise" between classical and non-classical education. The changes made in the Time Table of the Prussian Realgymnasien in 1892 were probably injurious to the intellectual efficiency of those schools, and were at the time the subject of energetic protest from many leading authorities. Those changes (greatly modified by the quite recent regulations given in Appendix II. below) lessened the amount of time given both to Latin and French. But during the last three or four years opinion seems to have changed a good deal, and the position of the Realgymnasien has proved stronger than it was thought to be in 1890–2. It is probable, therefore, that the numbers of boys in the semi-classical schools will again rise.

In an earlier volume of this series* an account has been given of the historical and other causes which have affected the development of the curricula in the various types of secondary school in Prussia. Here it must suffice to say that the Prussian Gymnasium was the great creation of that national movement for the reorganisation of civil life through the higher schools which is specially associated with the name of Wilhelm von Humboldt. The reforms of 1808–1818 set up in Prussia a highly efficient system of secondary *day*-schools. The old boarding-school tradition (which survived in England, and has gradually transformed itself, partly under the influence of such men as Butler of Shrewsbury, Hawtrey of Eton, and Arnold of Rugby, partly under the pressure of public opinion) was discarded by the Prussian reformers. The great English public schools, ill-managed as they were, had far more life in them at the beginning of the century than had their counterparts in Germany. W. von Humboldt and his colleagues took the local "Latin schools" and converted them into schools for teaching the classical humanities. The new Prussian Gymnasien may be regarded as fortresses, planted down in well-chosen positions in order to hold in subjection two very different kinds of intellectual enemy—the dreary formalism of the old Latin teaching and the far more serious peril of narrow utilitarianism. Every gymnasium was to be a focus of intellectual light—a centre of humaner influence, a protest against any mean idea of national education. It was hoped that the new enthusiasm for Greek poetry and Greek ideals of life would burn brightly in the new schools, and, in the end, transfigure German culture. But from the first the Gymnasium had to be a compromise. Then, as now, there were two tendencies in educational opinion, the one laying stress on the need for intellectual discipline, the other dis-

* Volume III. pp. 151, *et seq.*

posed to think that all would go well if only you secured a glow of intellectual interest. Moreover there was some lack of teachers able and qualified to translate the new ideas into practice. Hence, from the first, Latin held a more important place than Greek in the Gymnasien, though it was to Greek and not to Latin that the reformers looked for the vivifying influences which were to create the new educational tradition. And the claims of "formal discipline" were yet further met by the prominent place given to mathematics. Slowly the flush of enthusiasm for Greek culture began to fade. On the other hand, the need for some new and more practical type of secondary education for the middle and mercantile classes showed itself more and more. Within the schools themselves, Herder's ideal of "Education in the Humanities" was encroached upon by the growing taste for classical philology, and the State increased its demands for a solid and well-disciplined body of recruits for the Government service. The result was that, by the middle of the nineteenth century, the Gymnasien were the centres of an educational influence very different from that contemplated by W. von Humboldt and his contemporaries. But socially, intellectually, and administratively, the position of the Gymnasien was stronger than ever. They enjoyed a monopoly of all the higher kinds of Government favour. Through them, and through them alone, every boy had to pass who wished to be a clergyman, a jurist, a doctor, or a higher official of the State. For years the Prussian educational authorities gave little thought to anything between the schools for the leaders of the nation and the schools for the common people. But the rising needs of the middle and commercial classes gradually made themselves felt. The Realschulen, in the teeth of every kind of discouragement, slowly made their way. Government could not ignore them. In 1859 it recognised three classes of "modern schools." Of these the most important were the so-called "Realschulen of the First Class," with a nine-years' course, including Latin. This was the germ of the Realgymnasium. But the universities were still closed to the new type of school. The Gymnasium retained its great monopoly and its social prestige. At last, in 1870, pupils who had successfully completed a full course of nine years' training at the "Realschulen of the First Class" (*i.e.* with Latin) were admitted to the study of mathematics, natural science, and modern languages at the university. The tide was rising, but the Gymnasien had as yet no reason to feel alarmed. Twelve years later (in 1882) there was a fresh classification of the Prussian secondary schools. "The Realschule of the First Class" received the name of Realgymnasium; and Government recognised, among other types, a purely non-classical school with a nine-years' course, Oberrealschule). But the "privileges" attached to the last-named kind of school were still slender. Gradually, however, they have been increased, and, besides entitling a youth to the highly valued privilege of "serving one year as a volunteer," the completion of the nine years' course at an Oberrealschule admits him to the study of mathe-

matics and natural science at the university. In the meantime the privileges of the Realgymnasium had also been materially enlarged, and the friends of the purely classical Gymnasium began to show irritation and alarm at the advancing fortunes of their rather despised rival, the Latin school which was forbidden to teach Greek. The more militant spirits in the Gymnasium party made overtures to the Extreme Left in Prussian secondary education (*i.e.* to the advanced partisans of purely non-classical education), in the hope of being able to crush the intermediate party, *i.e.*, the upholders of "that dangerous compromise, the Realgymnasium." Opinion began to polarise itself. The extremists on both sides hoped that the central party might be destroyed. Each probably knew that, when that had been done, the ground would have been cleared for the final struggle for supremacy between the classical and the non-classical schools. But each cherished its own belief as to the probable issue of such a struggle, and, in the meantime, seemed to regard the destruction of the intermediate type of school as a necessary step to which both could agree. The threatened Realgymnasium, however, has proved to be a more powerful institution than its adversaries imagined. It enjoys the favour of many of the great cities. Probably a good deal could be done to improve some of the methods of teaching in these schools, but something like the curriculum of the Realgymnasium evidently meets *one* definite need of the time. During the last few years there has been over some parts of Europe and in the United States a distinct growth of opinion in favour of Latin as an element in secondary education. The causes of this will be discussed later. Nearly all the higher professional studies involve a knowledge of Latin. There is, therefore, a practical need for a type of secondary school which prepares boys for the examinations they want to pass, while at the same time paying some regard to "modern studies." The result is that, for the present, the Realgymnasium has repelled the dangerous attack, and the new regulations of 1901 will, perhaps, make it stronger than ever.

In November 1900 the Prussian Government took the important step of declaring that, in principle, the Gymnasium, the Realgymnasium, and the Oberrealschule are to be considered as giving an education of equal value for the general cultivation of the mind. But this declaration does not open all university studies, or therefore all professions, equally and indiscriminately to all pupils from all the three types of school. Special knowledge is still required for each of the different forms of academic and professional study, and those who come from a type of secondary school which does not impart the knowledge needed for the particular calling in view, will be required to obtain the necessary minimum of such knowledge (whatever the appointed minimum may be) before they can proceed to the next stage in their education.

Hitherto, however, the Gymnasium has been by far the most highly favoured of the three types of secondary school in Prussia.

Every boy in Prussia who wished to be a clergyman, or a jurist, or a doctor, has had, down to the recent change, to pass through the complete course of nine-years' work at one of the fully-classical secondary schools. That is to say, the Prussian Gymnasien have been the nurseries of the learned professions and of the higher ranks of administrative life.

The following figures* show (1) the number of scholars who, in 1899–1900, went on to the universities from the different kinds of Prussian secondary schools; and (2) the callings for which they were preparing themselves.

(1) *Prussian Secondary Schools and the Universities.*

In 1899–1900 there obtained the "Certificate of Maturity":—

(*a*) In the Gymnasien, 4,710 scholars, of whom 3,510 (or 74·5 per cent.) proceeded to the University.

(*b*) In the Realgymnasien, 716 scholars, of whom 217 (or 30 per cent.) proceeded to the University.

(*c*) In the Oberrealschulen, 314 scholars, of whom 65 (or 20·7 per cent.) proceeded to the University.

(2) *The Callings for which the Scholars were preparing themselves.*

(1) Of those leaving the Gymnasien—

821 (or 17·6 per cent.) intended to study Theology.
1,435 (or 30·5 „) intended to study Jurisprudence.
706 (or 17·1 „) intended to study Medicine.
320 (or 8·8 „) intended to study Philology.
220 (or 4·9 „) intended to study Mathematics and Natural Science.
277 (or 5·9 „) intended to enter the Army.
383 (or 8·1 „) intended to become Architects or Engineers.
172 (or 3·6 „) intended to enter the Departments of Mines, Forests, Post Office, or Inland Revenue.
272 (or 5·8 „) intended to become Agriculturists, Manufacturers, or Commercial men.

(2) Of those leaving the Realgymnasien—

217 (or 30 per cent.) intended to proceed to the University, mostly to qualify for the post of teacher in a Secondary School.
32 (or 4·5 per cent.) intended to enter the Army.
163 (or 25·6 per cent.) intended to become Agriculturists, Manufacturers, or Commercial men.
188 (or 26·4 per cent. intended to become Architects or Engineers.
89 (or 12·4 per cent.) intended to enter the Departments of Mines, Forests, Post Office, or Inland Revenue.

(3) Of those leaving the Oberrealschulen—

65 (or 20·7 per cent.) intended to proceed to the University.
20 (or 6·4 „) intended to enter the Army.
114 (or 36·3 „) intended to become Architects or Engineers.
33 (or 10·5 „) intended to enter the Departments of Mines, Forests, Post Office, or Inland Revenue.
79 (or 25·3 per cent.) intended to become Agriculturists, Manufacturers, or Commercial men.

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* Summarised by Professor Paulsen from the seventeenth *Ergänzungsheft zum Centralblatt für die Unterrichtsverwaltung in Preussen.*

(*h*) Clearness of educational classification; precision of nomenclature and of educational aim; high excellence of linguistic discipline; skill in devising methods of teaching and in the economical use of school time; readiness to take up new ideas and to revise old traditions; the high standard of intellectual attainment and of professional efficiency among the teachers; all these (and especially the last) are sources of strength to Prussian education. But the present condition of the system could never have been reached without the direct, stringent, and unceasing control of the State. That control has been elaborated with great administrative skill. Some will regard it as the crowning glory of the Prussian system; others as its central danger. I myself incline to the latter view.

The stages by which State control has been established over secondary education in Prussia may be summarised as follows. In 1750 the provincial Church Consistories, except that of Silesia, were brought under the jurisdiction of the Consistory of Berlin, and this change had the indirect result of bringing the schools more under one control. In 1787 King Frederick William II. established the *Oberschulkollegium*, which was expressly charged with the duty of improving the whole school system of Prussia in accordance with the needs of the time. The Minister of Education, von Zedlitz, was a member of the Oberschulkollegium, and perhaps his most influential colleague was Gedike, who had formed large plans for the State control of national education. The Oberschulkollegium was instructed to make provision (1) for the examination of intending teachers, (2) for the establishment of Training Colleges, (3) for the enforcement of Royal rights in regard to the appointment of teachers, and (4) for the regular inspection of all schools, the introduction of good text-books, and the study of improved methods of teaching. In 1788 the Oberschulkollegium instituted a State leaving examination for public secondary schools.* The men who inspired the policy of the Oberschulkollegium in its earliest days well understood that by means of such a leaving examination, together with regular inspection, the State can most effectively control (whether for good or for evil) the course of studies in secondary schools. A further step towards State organisation was taken by requiring the Church Consistories to furnish the Government with particulars as to the existing educational provision in their districts. But the activity of the Oberschulkollegium was checked for a time by the opposition of the Lutheran Church. The real struggle was between the rising power of the State and the claims of the Church to retain its control over education. It was a time of reaction after the period of Rationalism, and the King was

* Indirectly, the establishment of this examination, and the consequent encouragement of classical studies, had the effect of checking for a time the higher developments of the Realschulen.

not inclined to relax the close ties which bound the schools to the Church. Consequently the actual powers of the Oberschulkollegium were somewhat restricted, though the foundations of the new order were laid nevertheless. In 1794 the *Allgemeine Landrecht*, while recognising parental rights in education, formally declared all schools and universities to be State institutions, and forbade their establishment except with the State's foreknowledge and consent. The *Landrecht* further required that *all* places of education should submit themselves at all times to visitation and inspection by officials of the State. No child was in future to be excluded from any public school by reason of nonconformity of religious belief. And the teachers in all higher schools were expressly recognised as members of the Civil Service. These provisions mark an important stage in the advance of State control over education in Prussia. Then came the crisis of the Napoleonic war. The disaster of 1806 led to the reorganisation of the State, and consequently to the reorganisation of education. Patriotic devotion, enthusiasm for Greek culture, an intense belief in the importance of education for all classes, and especially for the leaders of the nation, produced a great wave of zeal for educational reform. Stein, in order to free himself from clerical interference, abolished the Oberschulkollegium, and in 1808 made the office of worship and public instruction one of the sections of the Department of the Interior. The direction of the Education Office was placed in the hands of Wilhelm von Humboldt. "In Prussian history," wrote Sir J. Seeley, "the year between April, 1809, and April, 1810, belongs to W. von Humboldt almost in the same way that the period between October, 1807, and November, 1808, belongs to Stein." In 1792 Humboldt had expressed his conviction that "public education lies entirely outside the limits within which the State should confine its operations."* But the events of the following years showed this theory of *laisser-faire* to be untenable, and it fell to Humboldt's lot not only to inspire every grade of national education by his influence, but, by one of the ironies of history, to set going a form of organisation which has developed into a more stringent form of State control over secondary schools, universities, and professional culture than he himself would probably have approved. The edict of 1810 fixed the qualifications of the teachers in all higher schools. In effect it substituted State control for local tests of competence and for personal recommendation by university professors. It was Humboldt's earnest desire that "headmasters should be left as free a hand as possible in all matters of teaching and discipline." His first steps as Director of Education seem to show that it was his plan to focus in the Education Office, by means of an Educational Council of eminent men of letters and

* In his work on the *Sphere and Duties of Government*, which, however, was not actually published till many years afterwards.

science, the best ideas as to methods of study and of teaching. It was possibly his hope that the diffusion of these new ideas would bring about, in the most fruitful way, the reforms needed inside the schools. But the current of change was running too fast for any such gradual improvements. The inertia of the schools proved a more serious obstacle to reform than Humboldt had expected it to be. Great changes had to be made, and made quickly. The result was that the State took up again the weapon, which it had first forged in 1788, but had not then been able to wield. In 1812 the State leaving-examination was extended to all the higher secondary schools of Prussia without exception, and in 1814 Süvern drew up, on behalf of the State, the curriculum for the classical schools. At first the State showed itself excessively anxious to leave as much as possible of academic and individual freedom. But the tendency to tighten the reins proved irresistible, and in 1834 the new regulations for the State leaving-examination laid it down that only those who had obtained a satisfactory leaving-certificate at a secondary school should be admitted (1) to the study of theology, law (including political and economic science), medicine (including surgery), and philology at the university, (2) to the examinations for academic honours, and (3) to the subsequent examinations for appointment to those public offices in Church or State for which a course of academic study was required.* Thus in Prussian education the grip of the State has ever grown closer. The State began to stretch out its hand over higher education many years before the great crisis in which Prussia struggled for her national life. But that crisis broke down all hesitation on the part of those who would otherwise have preferred to see a gradual reform from within the institutions rather than great changes imposed on them from without. The men who were charged with the duty of reforming Prussian secondary and higher education in the first decade of the nineteenth century were full of sympathy with individual effort, and were convinced that the permanent welfare of the State depended on the character and moral freedom of the individuals composing it. It was with reluctance that they availed themselves of the instruments of State control over school studies. When forced to apply them, they did so for the sake of stimulating education, not to limit its freedom. But from stage to stage State control grew closer and closer. Administrative convenience or necessity led to an ever-increasing restraint. And at last what had been begun for stimulus ended in something very like monopoly.

But in Prussian education State control is not centralised in the narrow sense of the word. The supreme educational authority of Prussia decentralises itself by stationing its outposts over the whole country, not by devolving its powers on to any local authority. It enforces its control through inspection, through regulations, to some extent through money grants, but ultimately

* See "Special Reports on Educational Subjects," Vol. III. pp. 99–101.

and most effectively through State control over entrance to the universities and to the various forms of professional as well as military and official life. The crucial difference between the German and the English systems lies here;—In England the State has very little to say on the subject of the education that is required as a preparation for later life. In Germany all the professions and higher callings form, as it were, a network of channels which can only be entered from some approved point in the main canals of State-controlled secondary education. At the entrance of every profession there is the gate of a State examination. Moreover, the wide extension of the Civil Service in Prussia carries with it a proportionate degree of State control over the secondary and higher education of all who intend to be candidates for official appointments. The State control of the entrances to academic studies and to professional life is the real "sanction" of the whole system of German secondary instruction. Were it not for this (and for the fact that one year of compulsory military service is excused in the case of boys who have passed satisfactorily through an approved secondary school), it may be doubted whether the number of boys in the German secondary schools would bear anything like so large a proportion to the population as is at present the case.

The following table, taken from Dr. R. P. Scott's "Memorandum on Public Secondary Schools in London, 1891–1901,"* illustrates the difference in the number of boys at secondary schools in Berlin, London, Birmingham, and Boston (U.S.A.).

1 Name of City.	2 Population.	3‡ Number of Boys in Public Elementary Schools.	4 Number of Boys in Public Secondary Schools.
*Berlin	1,750,000	100,685, *i.e.* 57 per 1,000 of population.	17,599, *i.e.* 10·0 per 1,000 of population.
†Boston, U.S.A.	582,463	35,212, *i.e.* 61 " "	2,524, *i.e.* 4·3 " "
Birmingham	514,956	26,583, *i.e.* 52 " "	1,758, *i.e.* 3·4 " "
London	4,546,752	235,000, *i.e.* 52 " "	13,370, *i.e.* 3·0 " "

* In the case of Berlin the provision of Public Secondary Schools for boys of 10 years and upwards is made up under the following heads:—Classical, Semi-Classical, and Modern Schools, each type being subdivided into those having a 9-year or a 6-year course respectively. Boarding Schools are comparatively rare in Prussia; this rarity increases the proportion in attendance at day schools.

† In the case of Boston the Latin and High Schools have been included in the Secondary Schools, the Grammar as well as the primary grades being reckoned as elementary; if the Kindergarten Schools be included with the latter, the figure in column 3 would be 64 per 1,000 of population.

‡ The figures in column 3, relating to London and Birmingham, have been taken from the Report of the Board of Education, 1899-1900, and are the numbers on the Registers for August 1899. In order to make them more nearly comparable with those of Berlin, where no children below the age of 6 are admitted, infants (presumably consisting of boys and girls in equal numbers) are not included; if included, the figures in column 3 would run thus: Birmingham would show 86 per 1,000 of population and Lond n 83. The figures in column 4, though referring to 1901, vary very little from those for 1899.

* Published at the Office of the Incorporated Association of Headmasters, 37, Norfolk Street, Strand, May, 1901.

The Prussian Government has recently made an important decision which affects the question of these "school privileges." Among those privileges one of the most valued has been the recognition of a school's leaving-certificate as excusing a youth from one of the two years of military service. It is the desire of every boy in a secondary school to obtain this certificate (Zeugniss für den einjährig-freiwilligen-Militärdienst). Anyone who holds this certificate is not only excused one year's military service but, while serving, enjoys a higher status in the ranks. His food, lodging, and uniform have to be provided at his (or his parents') own expense, and the necessary outlay amounts to at least £100. In Germany social distinctions are very precise, and the privilege of serving as a "volunteer" is highly valued. Moreover, the certificate which confers this privilege on the holder has a definite educational significance. It means that the youth has satisfactorily completed a long course of secondary education. Accordingly the certificate has become a usual qualification for entrance into good business-houses. Commercial firms in advertising vacancies often state that they will require applicants to hold this certificate. The result is that what is primarily a military regulation has had far-reaching commercial effects, and has tended to raise the level of intellectual attainment among the younger business-men of Germany. It has also had the effect of inducing large numbers of parents, who would otherwise have been contented to give their boys a shorter and less thorough education, to send them to secondary schools, and to keep them at those schools for not less than six years. *i.e.*, from nine to sixteen years of age at the least. But the "certificate for one year's military service as a volunteer" is not confined to those boys who have completed the course at one of the nine-year schools (viz., Gymnasium, Realgymnasium, or Oberrealschule). It is also given to boys who have finished the course at a Progymnasium, or Realgymnasium, or Realschule. At these latter schools, however, the course extends only over six years. There were therefore very good grounds for granting an equivalent certificate to boys who had satisfactorily completed the first six years of the nine-years' course at a Gymnasium, Real-gymnasium, or Oberrealschule. Otherwise, the State would have been setting a kind of premium on schools with the shorter course. Therefore in Prussia there was established an examination held at the completion of the work done in IIB. of a nine-year school. This examination was called the Abschluss-prüfung, and those who passed it received the certificate excusing them from one year of military service, and giving them the status of a "volunteer." This examination is not to be confused with the "Reife-prüfung," which is held only at the completion of the full course of the school. The institution of the Abschluss-prüfung was deprecated by many friends of secondary education in Prussia. They foretold that one result of its establishment would be to break into the whole scheme of studies appointed for the nine-year schools. The facts have

justified these fears. The Abschluss-prüfung has had injurious effects on the nine-year schools in Prussia. It was found to dislocate the work of the teachers by setting up a new examination-test two-thirds of the way through the complete school course. In the winter half-year of 1898–99 there left the Gymnasien, from the class called IIB. (*i.e.* the fourth class from the top of the school), no less than 1,230 boys with the "certificate for one year's military service." In the same half-year there left with the same certificate 694 boys from the Realgymnasien, and 572 boys from the Oberrealschulen. So large a "leave" greatly reduced the numbers in the three highest classes in the nine-year schools. In the winter half-year 1898–99 the following were the numbers of boys in the different classes of the three types of nine-year schools in Prussia:—

	VI.	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.
Gymnasien	11,890	11,520	11,852	11,124	9,968	9,599	6,829	5,658	4,832
Real-gymnasien	3,228	2,857	2,975	3,272	2,745	2,541	1,518	999	821
Oberreal-schulen	2,257	2,103	2,012	1,722	1,486	1,304	578	351	258

First six-years' course.

This tendency to leave two-thirds of the way through a nine-years' course naturally impairs the educational efficiency of the schools, and the Gymnasien being the most numerous, suffered most. But the tendency is inevitable so long as (1) the "certificate for one year's military service as a volunteer" can be gained at the end of the sixth year's work in a secondary school, and (2) parents prefer the Gymnasien for social reasons. However, there was no need to aggravate the mischief by having a special examination at the end of the sixth year of a nine-year's course. Saxony had never done so, and had seen no reason to follow the Prussian example. In consequence, the Prussian Government announced in November, 1900, that the "Abschluss-prüfung" would be abolished as soon as possible. But the parents of boys in the nine-years' schools, whose main desire is that their sons should win the "certificate for one year's military service" as soon as possible, will continue to take them away at the end of the sixth year, provided that their work has been satisfactory enough to gain that certificate.

Within the last few months the Prussian Government has taken a further step of great importance in the direction of giving more freedom of access to university studies. By a decree, dated 26th February, 1901, the Minister of Education has given instructions to the State-Examination Boards that scholars who have completed the course at any of the three types of schools with a nine-years' curriculum (*i.e.* classical, semi-classical, or non-classical) are to be

admitted to the State examination for the certificate qualifying the holder to teach in a secondary school, without any restriction as to particular subjects. But, in order to secure the necessary intellectual qualifications two conditions are prescribed. (1) Those candidates who wish to teach Modern Languages are to be required to prove their knowledge of the elements of Latin Grammar, and their ability to understand, and to translate correctly, at least the easier passages in Latin authors like Cæsar. (2) Those candidates who wish to be recognised as qualified to teach History are required to prove that they possess the necessary knowledge to enable them to understand historical works written in Greek or Latin. The effect of these changes is that the Gymnasium will lose (on paper, at any rate, and doubtless in practice also) some of its present monopoly. It will be much easier than it is at present for a boy from an Oberrealschule to become a teacher of Modern Languages in a secondary school and for boys from Realgymnasien or Oberrealschulen to qualify themselves as teachers of History. Under the previous regulations, which still hold good in this regard, a pupil on completing his course at an Oberrealschule could obtain the privileges attaching (1) to a Realgymnasium, by passing a further examination in Latin at a Realgymnasium, and (2) to a Gymnasium by passing a further examination in Latin and Greek at a Gymnasium. And similarly, a pupil on completing his course at a Realgymnasium could obtain the privileges attaching to a Gymnasium on passing at a Gymnasium a further examination in Latin and Greek. But, if they failed to satisfy these extra tests, boys from Oberrealschulen have hitherto been shut out from the study of Modern Languages at the university, and therefore from the possible career of a Modern Language teacher at a secondary school; and boys from Oberrealschulen and Realgymnasien alike have been cut out from the study of history at the university, and therefore from the chance of becoming qualified to teach history in a secondary school. The new regulations widen the area from which, in future, teachers can be drawn. But at the same time they retain what will almost universally be regarded as sufficient guarantees for the intellectual attainments of intending teachers. A master in a Prussian secondary school has to know a great deal more of the subject which he proposes to teach before he is allowed to begin to teach it, than has the English secondary schoolmaster. The tendency of the whole system is to produce a learned class. Whether it also causes undue weight to be attached to learning as compared with the other qualifications of a schoolmaster is a matter of opinion. Our English practice shows that we generally regard erudition as being a far less important element in a schoolmaster's qualifications than activity of mind and body, natural sympathy with boys, love of games and outdoor exercises, and, above all, than the power of commanding the respect of his pupils, and exercising a good and invigorating influence upon them in school and out. Perhaps as a consequence of this we have fallen into the other extreme,

and have been too casual in our requirements as to high intellectual attainment. But there are no schoolmasters in the world who have so strong a hold on the affections of their pupils, past and present, as have many of those at our best English secondary schools.

Owing to the recent changes, mentioned above, the present system of "school privileges" in Prussia must be regarded as in a somewhat transitional state. For example, the study of medicine at the Universities has just been thrown open to the pupils from the Realgymnasien. Other changes are doubtless pending. As it stood a year ago the system had become extremely elaborate. The details of the privileges, which the various secondary schools enjoyed according to their different degree, are so numerous as to fill, as regards civil callings alone, four closely-printed pages in the current issue of the Year-book of the German Higher Schools, while another page and a half are occupied by a list of the corresponding "privileges" in respect of military service. The Gymnasium enjoyed a monopoly in the preparation of boys intended for "law, physic, or divinity." The following table (which is confined to some of the more important privileges, and, for the reasons given above, represents a transitional state of things) will best show the reader how carefully devised is this part of the machinery of State control of secondary education in Prussia.*

Table showing what type of Secondary School a Candidate must have attended, and what Class in that School he must have passed through, in order to qualify for the Academic, or Professional, Studies named.

—	Gymnasium.	Realgymnasium.	Oberrealschule.	Progymnasium, Real-progymnasium, or Real schule.
Study of Theology at the University. Admission to the State Examination for Ecclesiastical Service - - - -	IA	—	—	—
Study of Law at the University. Admission to State Examination for the higher Civil Service	IA	—	—	—
Study of Medicine at the University. Admission to State Examination -	IA	IA	—	—
Study of Classical Philology at the University. Admission to State Examination for Certificate to teach that subject -	IA	—	—	—
Study of History at the University. Admission to the State Examination for Certificate to teach History - -	IA	IA *	IA †	

* If sufficient knowledge of Greek is shown by candidate.
† If sufficient knowledge of Greek and Latin is shown by candidate.

* In preparing this table I have been helped by that given in Dr. Russell's *German Higher Schools.*

—	Gymnasium.	Realgymnasium.	Oberrealschule.	Progymnasium, Realprogymnasium, or Realschule.
Study of Modern Languages at the University. Admission to State Examination for Certificate to teach Modern Languages -	IA	IA	IA ‡	—
Study of Mathematics and Natural Science. Admission to State Examination for Certificate to teach those subjects - - -	IA	IA	IA	—
Study of Architecture and Mechanical Engineering. Admission to the Technical High Schools at Charlottenburg, Hannover, Aachen, Munich, Dresden, Stuttgart, Karlsruhe, Darmstadt, and Brunswick. Admission to the State Examinations for Civil, Mechanical, Marine, and Mining Engineers, and for Architects. Admission to the Schools of Mines at Berlin and Clausthal - - -	IA	IA	IA	—
Professional Training at Schools of Forestry at Eberswalde and Münden, and admission to the State Examination for the Forestry Service	IA	IA	IA	—
Professional Training for Agriculture. Admission to the Higher Agricultural Schools at Berlin, and Poppelsdorf (near Bonn), and at the Universities of Breslau, Göttingen, Halle, and Königsberg. Admission to the State Examination for the position of teacher at State Agricultural Colleges - -	IA	IA	IA	—
Professional Training at the Academic Institute of Church Music at Berlin - - - -	IA	IA	IA	—
Admission as "Élève" to the higher Post and Telegraph Service -	IA	IA	IA	—
Admission to Examination for the Constructive Engineering Departments of the Imperial Navy - - -	—	—	IA	—

‡ If sufficient knowledge of Latin is shown by the candidate.

—	Gymnasium.	Realgymnasium.	Oberrealschule.	Progymnasium, Realprogymnasium, or Realschule.
Admission to lower Clerkships in the Inland Revenue Office (provided the candidate also holds the leaving certificate of an approved lower Technical School with a two-years' course) - -	IIB	IIB	IIB	I
Admission to Land Surveyors' Examination (provided the candidate holds the leaving certificate of one-year's course of study at an approved lower Technical School) - - -	IIB	IIB	IIB	I
Admission to the Chemists' Examination (provided the candidate passes an examination in the Latin required for IIA of a Realgymnasium) - - -	IIB	IIB	IIB	I
Admission to the Dentists' Examination -	IB	IB	IB	—
Admission to the study of Veterinary Medicine	IB	IB	IB	—
Admission to study at the Industrial Art Museum in Berlin - -	IIB	IIB	—	—
Admission to the Hauptkadetten-Anstalt at Lichterfelde (Military School) - - -	IIB	IIB	—	—
Admission to an ordinary Agricultural School -	IIIB	IIIB	IIIB	—

From this brief summary of the main features of the system of secondary education in Prussia, I return to the questions which were mentioned on an earlier page (p. 63) as being at present under discussion.

(1) First, with regard to the relation between the public elementary and the secondary schools, the Prussian secondary schools are so elaborately organised, their intellectual standards are so high, and the work of one class dovetails so exactly into the work of the class above it, that a boy does best by entering, when he is nine years of age, at the bottom of the school and working his way up to the top of it by the time he is eighteen or nineteen. The result is that boys intended for secondary schools would generally leave the elementary school (assuming them to be educated there at all) when they are nine—*i.e.*, three years after the commencement of the elementary school course. But so advantageous is it to have special preparation

for the secondary school in a preparatory school organised for that purpose, that there is a steady growth in the number of little boys who, from six to nine years of age, attend the preparatory department of the secondary school instead of the public elementary school. The following statistics show the growth of this tendency in Prussia in recent years :—

Winter Half-Year.	Number of Boys in the Preparatory Departments Attached to		
	(1) Fully-Classical Schools.	(2) Semi-Classical Schools.*	(3) Non-Classical Schools.
1895-96	9,242	4,852	5,400
1896-97	9,715	4,793	5,613
1897-98	9,944	4,706	6,111
1898-99	10,685	4,149	6,326

* The total number of boys in these schools has fallen from 1895-96 to 1898-99, and the numbers in the attached preparatory schools have also dropped, though not in the same proportion.

The figures show that the "Preparatory Departments" are coming more and more into vogue. In the winter half-year of 1898–99 there were 83,272 boys in the Prussian Gymnasien,or fully-classical schools with a nine-years' course. In the preparatory departments attached to those schools and attended by boys not yet old enough to begin the nine-years' course, there were no less than 10,289 boys. In the preparatory departments of the Realschulen (non-classical schools with a six-years' course) there were at the same period 4,227 boys, while in the Realschulen themselves the pupils numbered 27,232.

The Prussian secondary schools are not organised "end on" to the top of the public elementary schools. The fact that, except in the Berlin Realschulen, classics or foreign languages are taught from the bottom of the secondary schools, but not at all in the Prussian public elementary schools, puts an elementary schoolboy at a disadvantage, unless he enters the secondary school at nine years of age, or unless he can get special private preparation at a later age. It is well known how large a number of highly cultivated and eminent Germans have obtained their early training in a public elementary school* ; but the German system is far from being organised, like the Norwegian, with the definite aim of making such a course of education the normal one. The Prussian secondary schools are not regarded as continuative of the completed work of the public elementary schools. There is no great trunk line of studies leading through the public elementary schools up to the secondary schools, and thence onwards through to the university. At the beginning of the secondary school course (with the exception named above) there is a break of gauge. Nor does the Prussian

* *e.g.* Professor Virchow, who was educated, till the age of 13, at the primary school in his native village in Pomerania.

Government do much to develop a "top" to the public elementary schools, though in a few places the so-called middle schools may be regarded as a sort of higher primary schools. The high level of intellectual attainment and of professional skill possessed by the Prussian elementary schoolmasters is well known throughout the world. Not less universally recognised is their devotion to duty. But it is on the secondary schools, on the universities, and on the technical high schools that the Prussian Government has centred its most anxious care and most strenuous efforts. It believes that the country must be led intellectually from above, and it spares no pains to secure the intellectual efficiency of the middle and upper classes. The Prussian principle is to spend money on a few very good staircases, and not on a great many ladders leading nowhere in particular.

Some German critics, however, regard the tendencies of the Prussian educational system as being somewhat in conflict with the interests of social unity. Among those who have earnestly pleaded for a more general use of the public elementary school as the preparatory course for the secondary school is Professor W. Rein, of Jena. Another German writer, in a recent work discussing the relations between education and social development, goes so far as to argue in favour of all parents being *compelled* to send their children from six to twelve years of age to the public elementary schools.* There are no signs, however, of such a view being adopted by the more responsible leaders of German educational opinion. If anything, the current seems for a time to be running the other way. To obtain results of first-rate educational quality seems to be a matter of such imperative necessity for an active modern State that they would be loath to sacrifice intellectual efficiency in the hope of bringing about more social admixture in the primary schools. "And in any case," they would probably argue, "social unity depends on a great number of economic, historical, and spiritual causes. No merely mechanical enforcement of a law that all children should go to the same day-schools would suffice to create social unity if otherwise non-existent; or to counteract social discord, were such unhappily to be prevalent. Two little children may sit side by side on the same bench, and yet intellectually and socially belong to different worlds. It is the home and play-time, not the school alone, which affect the tone of children's minds. How can you expect a careful parent to be indifferent to the kind of children with whom his own boys and girls are to be encouraged to associate?"

On the other hand, it must not be forgotten that there is a strong feeling of national unity in Germany, probably stronger now than ever before. Moreover, owing to the system of block dwellings, rich families and poor are often much more intermixed in point of place of residence than is generally the case in England. And the great excellence of the primary schools in some places naturally encourages parents to take advantage of them. Nor has the old

* Paul Natorp, *Sozialpädagogik.* (Stuttgart, 1899.)

tradition in favour of common-school education yet wholly lost its hold. But it must be admitted that, partly as a result of city life, partly as a consequence of the rising standard of intellectual requirement, some of the economic and intellectual tendencies of the present time point in the direction of increased separation between different types of school rather than in that of simple amalgamation. The pleasant relationships between boys of very different positions, which in many countries were so often a mark of early school life in small towns or country places, were rendered possible by an almost patriarchal simplicity, by everybody knowing every one else's position, and by the common recognition of an established social order. The loss entailed by the disappearance of those old companionships will be great. The son of well-to-do parents may learn something much better than book-knowledge by becoming practically acquainted at first hand with the different needs and experiences of families in more straitened circumstances than his own. Happily there are few pleasures so deep and lasting as those which may come through a closely-knit and well-established form of local life; clustering round some natural centre, enriched by a great variety of experience, and embodying much shrewd tradition. Perhaps, in the future, the tide may turn back towards something, like and yet unlike, what we have had to leave. But we cannot replace, at our pleasure, a disappearing order of society, however much we may regret it. And still less can we decree, at will, what form the much-desired educational unity shall take.

(2) With regard to classical education, there has evidently been a marked growth of opinion in Prussia during the last ten years. Four points may be noted. First, there has arisen a new wave of enthusiasm on behalf of the classical humanities, and especially on behalf of the study of Greek literature and philosophy. Second, there is an evident reluctance to dispense with the formal discipline imparted by good teaching of Latin. Third, there is a more general recognition of the fact that, whatever be the case with Greek, Latin is, for historical reasons, indispensable to any high degree of intellectual interest in any learned profession. Fourth, there is a laudable readiness in some quarters to throw to the winds the monopoly of certain privileges formerly possessed by the Gymnasien.

This last shows confidence in the assured future of classical studies. It may show too an almost fastidious distaste for anything implying that classical studies, if taught in a humane spirit and invigorated by modern research, need to be supported by legal monopolies. But it may also proceed from an even stronger distaste for the task of dealing with the dull and commonplace minds which have been drawn in some measure into the Gymnasien, through the direct and indirect operation of the special privileges attached to them. In 1890 the Berlin Conference on Secondary Education was in

favour, by a decisive majority, of upholding as much as might be of the old monopoly. In 1900 the new conference went as decisively the other way.

The more general recognition of the historical necessity of Latin as one of the keys to the materials of modern culture has had a double effect. First, it has strengthened the position of the Realgymnasien—those hybrid schools which successfully attempt a compromise between modern studies and the acquisition of Latin. The result of the deliberations of the Conference of 1900 has been a distinct increase in the hours of Latin teaching in these schools.* This reverses the decision of 1890. In the meantime the great cities have evinced their loyalty to the Realgymnasien. The latter meet a practical need, and for the present at any rate their future seems assured. Secondly, the *technical*, as distinct from the merely educational, value of Latin has become more clearly recognised. This recognition may well lead in the future either to the conversion of some Oberrealschulen into Realgymnasien, or to the introduction of Latin as an optional subject in the three highest classes of the Oberrealschulen. The outlook for the uncompromising advocates of a purely non-classical education is not quite so bright as it was. In Norway indeed, and now even in more conservative Sweden, the current is running, for the time, strongly against the older classical education.† But it must not be forgotten that many Scandinavians are under the practical necessity of learning one modern language more than the Germans. Historical and (in Norway in particular) semi-political reasons seem to have accentuated this almost personal dislike of the classical tradition. In Russia it has recently been decided to reduce the amount of Latin teaching in the middle schools, but here again the cause may partly be found in the number of modern languages which educated Russians are bound to learn. In the United States of America, on the other hand, the study of Latin is in the ascendant. It appears from the statistics of the Bureau of Education in Washington that in the public and private secondary schools of the United States, there are now more scholars studying Latin than, with one exception, any other single subject. The exception is algebra. The percentage of the scholars studying Latin has been rising during the last ten years in the American secondary schools. In 1889–90 it was 33·62 of the total number of scholars in the schools; in 1893–94 it had risen to 43·59; and in 1897–98 it stood at 49·44. The reasons why Latin is practically indispensable to advanced study in any learned profession could not be more clearly stated than in the following words of Sir F. Pollock.‡

"Why go on hammering at Latin? The answer is just that Latin is the key to the whole history of Western civilisation, as Arabic is to that of

* The Royal Decree of November 26th, 1900, states that His Majesty "will raise no objection to Latin occupying a position of increased importance in the time-table of the Gymnasien and Realgymnasien."

† See Dr. Andersen's paper in Vol. VIII. of this series.

‡ In the *Pilot*, January 12th, 1901.

Moslem culture. Latin was a perfectly living medium of intercourse for the whole Western world of letters throughout the Middle Ages and the Renaissance. It still lives as the universal language of the Western Church. I do not except the Anglican Church, which does not lack its own authentic Latin texts. Without command of Latin it is impossible to go back more than about a century in the history of science, art, politics, jurisprudence, or even vernacular literature and philology. The exact sciences are no exception. Newton wrote in Latin; Leibnitz, if not Newton, probably thought in it. Without Latin, in other words, there is no liberal education. The history of English law itself, perhaps the most insulated and self-contained branch of all human learning, is largely contained in Latin documents which are not and cannot be adequately translated. Greek is a fascinating speciality and a splendid luxury. But, for all historical purposes, except the study of Greek antiquity and ancient Greek thought themselves —a large exception, I admit—it is a luxury and not a necessity. Latin, though less interesting in itself, is indispensable. That is one valid and inevitable reason why we must go on learning Latin. Does anyone suggest that the Latin materials of modern history should be translated? The mass of them alone forbids the thought of it.

"But what of the connection of Latin with the most modern studies? Latin is not only the key to European history in the widest sense, it is the key to the whole group of Romance languages. French without Latin will help a man somewhat in Italian, a little in Spanish; in the less known Romance tongues and dialects very little. Latin and French will carry him a large part of the way almost unconsciously. With French, I say, for I conceive that French and Latin should be studied simultaneously, and I incline to think that French should be begun, if anything, sooner. Even German,—unfortunately as I think—shows a good deal of Latin influence in its construction. . . . Indeed, much German, as late as the eighteenth century, is hardly intelligible without knowledge of Latin. We might wish it otherwise, but facts are as they are. Thus Latin is a guide and instrument of the highest power even in the modern vernacular world, and outside the languages over which it may claim a direct *patria potestas.*

"The real question is not whether we shall go on teaching Latin, but what we can do to teach it so as to make learners understand that it is not a dead language at all. On this ground it is useless for an amateur to offer suggestions which experts would be ready to denounce as impracticable, possibly with superior knowledge, and certainly with the appearance of it. Indeed, I do not know what improvements may have been made of late years. I do know and regret that the movement for the reform of Latin pronunciation started by our leading Latin scholars fully a generation ago has borne, so far, but scanty fruit. It would be something to adopt the modern Italian pronunciation for mediæval Latin, as to which there is no historical doubt at all. The only consolation is that French practice in this respect is, if possible, worse than our own.

"The sum of the matter is that all thorough-going literary and scientific study, saving a limited number of branches of mathematical and physical science, but including the historical study of those, assumes a working acquaintance with Latin; and the place which Latin holds and must continue to hold is determined not by its intrinsic merits but by its constant and various uses as a tool of the scholar's trade."

On the value of Latin as an instrument of intellectual discipline, opinion is much more divided. Some great authorities dilate on its "admirable tonic virtue," on its possessing "some peculiar quality which braces the faculties of the learners," and on its being "an unrivalled instrument for stimulating the reasoning faculties at an age in which their very existence might almost seem open to

doubt."* Other friends of classical education, however, repudiate these arguments with some heat and reply that, if you are looking for exercises in mental gymnastics, why not introduce Chinese? Ordinary opinion seems inclined to follow a middle course. It is generally agreed that many old-fashioned schoolmasters were apt to overstate the argument in favour of "formal discipline for the mind." In parts of Germany, about a century ago, the worship of Latin as an instrument of educational discipline reached an extravagant height. One great headmaster went so far as to say that nothing in the world could ever replace Latin grammar as a training of the reasoning powers, and that it was just as useful for a bare-legged young goose-herd as for a budding philologist. This excessive zeal for "discipline" brought about a much-needed reaction. Teachers began to throw stress on the need of awakening intellectual interests rather than on the benefit of stern mental discipline. But danger lay in this extreme no less than in the other. Excitement and excessive variety in education may do as much to impair the value of training in one direction as pedantic formalism may do in another. The theory of education is apt to swing to extremes. But the best teachers are on their guard against this tendency, and know how to combine what is best in discipline and in interest, without drifting into a tepid compromise which misses the benefit of both. At the present moment those who argue in favour of giving little boys large and early doses of Latin grammar are apt to shrug their shoulders, and to defend their practice on the ground that there is nothing else so handy which does what is wanted half so well. Latin is cheap. Its elements can be taught out of a few books. It does not involve costly apparatus. It can be taught to fairly large classes. There is a recognised standard of efficiency in teaching it. It is an important part of the stock-in-trade of many of our best masters. The methods of teaching it have been sharpened to a fine edge through long practice. It is an excellent drill for scatter-brains. And little boys, as a rule, take to it rather kindly, provided that the teaching is smart, the discipline brisk, and the competition keen. But there is no disposition to claim on behalf of Latin any kind of monopoly. There is a feeling in the air that in the long run something else will be found which will take its present place—

* At the Berlin Conference on Secondary Education, held in June, 1900, Dr. Jäger, a sturdy advocate of the older educational methods, quoted with high approval some words used by Lord Rosebery in regard to German progress:—"Germany is infinitely more painstaking and scientific in its methods." He then proceeded to maintain that one of the corner-stones of German thoroughness and scientific method was the practice of teaching little boys Latin as soon as they entered the secondary school at nine years old. (*Verhandlungen über Fragen des höheren Unterrichts*, 1901, p. 59.) Prince Bismarck once expressed himself as "strongly in favour of a classical education," and as regretting that French should now be taught at the expense of Latin.—(*Conversations with Prince Bismarck.* Collected by von Poschinger. Ed. Sidney Whitman (Harper, 1900), p. 290.)

not expel it, but dethrone it. In the meantime, however, like other threatened institutions, it promises to live long, because it is very well taught; because it has considerable practical advantages; because in an age of intellectual distractions it is not amiss to have at least one tough and solid subject in every curriculum, and Latin is one of the subjects which well serves such a purpose; and, last but not least, because Latin is part of the weft of European culture and we cannot suddenly and at pleasure cut ourselves off from the past.

Latin really owes its present position in secondary education to the fact that it used to be the international language of all learned European society. That is to say, it was as necessary for cultivated intercourse as English, French, and German are to-day. Montaigne may be taken as standing almost at the parting of the ways between the old culture and the new. He thus tells the story of his own early instruction in Latin (1539). His father sent for a German, who, "being then altogether ignorant of the French tongue," was nevertheless—

"exquisitely readie and skilfull in the Latine. This man . . . had me continually in his armes, and was mine onely overseer. There were also joyned unto him two of his countrimen, but not so learned; whose charge was to attend and, now and then, to play with me; and all these did never entertaine me with other than the Latine tongue. As for others of the household, it was an inviolable rule that neither my father nor my mother nor man nor maidservant were suffered to speake one word in my companie except such Latine words as everyone had learned to chat and prattle with me. It was strange to tell how everyone in the house profited therein. My father and my mother learned so much Latine, that for a need they could understand it when they heard it spoken, even so did all the household servants, namely such as were neerest and most about me. To be short, we were all so Latinized that the townes round about us had their share of it; in so much as even at this day (1580) many Latine names both of workmen and of their tooles are yet in use among them. As for myself, I was about six yeares old and could understand no more French or Perigordine than Arabike. . . . I had got as pure a Latine tongue as my Master could speak; the rather because I could not mingle or confound the same with other tongues."*

In 1612, an English schoolmaster, Brinsley, published, in the form of a dialogue between two teachers, a book on the studies of grammar schools. He dwells on the importance of teaching boys to speak Latin, but also confesses, in the mouth of one of the interlocutors, how difficult it is to maintain the old practice under the new conditions of the time.

PHIL. Lastly when you have layed a sound foundation, that they may be sure to haue warrantable and pure phrase, by these means or the best of them, and all other their schoole exercises; then continuall practice of speaking shall vndoubtedly accomplish your desire, to cause them to speake truely, purely, properly, and readily; practice in a good way being here, as in all the rest, that which doth all.

SPOUD. These things, or but the best of them, being constantly practiced, cannot but effect maruellous much, and very surely; chiefly if we could

* Florio's "Montaigne's Essayes." Bk. I. chap. xxv.

bring them to speake Latine continually, from that time that they beginne to parse in Latine: but this I haue had too much experience of, that without great seuerity they will not be brought vnto: but they will speake English and one will winke at another, if they be out of the Master's hearing.

PHIL. It is indeed exceeding hard, to cause this to be practiced constantly amongst schollars.*

Latin was useful in international trade as late as the seventeenth century. A writer of the time speaks of it, as nowadays the friends of commercial education refer to French, German, or Spanish. "Factors or Marchants or the like, going beyond seas, find it necessary and convenient to speak Latin." But it was as the language of learning and of science that Latin continued to be indispensable. Dr. William Harvey (1578–1657) "had acquired such a perfect colloquial knowledge of Latin that he thought with equal facility in Latin or in English, so that it was immaterial into which language he put his ideas." But the result was an odd jumble. Some of the sentences in his lectures are a mosaic of Latin and English. For example: "Snayles cornubus tactu pro visu utuntur, unde oculi as a Centinell to the Army locis editis anterioribus." And again: "Exempto corde, frogg scipp, eele crawle, dogg ambulat."† A recent American writer quotes the early laws of Harvard College (1642–1646) as requiring every scholar to be able before admission, "to make and speak true Latin in verse and prose," but adds that "the attempt to compel conversation in Latin . . . always failed in America, even in Harvard College."‡ But the tradition was much more persistent in England, doubtless because of our closer connexion with the Continent of Europe. Locke, writing in 1690, advised that French should be taught before Latin, but both by conversation. "If a man could be got who, himself speaking good Latin, would always be about your son, talk constantly to him, and suffer him to speak or read nothing else, this will be the true and genuine way."‖ Dr. Wake (Archbishop of Canterbury, 1716–1737) conducted in Latin an important correspondence with certain Doctors of the Sorbonne on the subject of the terms of possible union between the English and Gallican Churches, another correspondence with Protestant pastors and professors in Geneva and Berne on matters of subscription and ecclesiastical discipline, and a third with a Polish divine on the lawfulness and expediency of a union between the Lutherans and the Church of Rome.§ Gray (1716–1771), says Mr. Duncan Tovey, "was more fluent in Latin than in English verse. Latin taught him by his nursing mother, Eton, was in literature his original

* Brinsley, *Ludus Literarius; or the Grammar Schoole*, 1612 (p. 219).

† D'Arcy Power, *Life of William Harvey* (Unwin, 1897), p. 56.

‡ E. Eggleston, *The Transit of Civilization from England to America in the Seventeenth Century* (New York: Appleton, 1901), pp. 215 and 259.

‖ *Thoughts concerning Education*, pp. 514-517.

§ Maclaine's translation of Mosheim's Ecclesiastical History, 1768, Vol. V. pp. 121-143 and 151-179. I owe this reference to Mr. Abbey's *English Church and its Bishops*, 1700-1800.

tongue."* Isaac Williams, who was at Harrow about 1816-21, says in his *Autobiography* that the great charm of his life there was composition, especially Latin. "Our exercises were so numerous—four every week—that I then acquired the habit of writing so much. . . So much was I used even to think in Latin that, when I had to write an English theme, which was very rarely, I had to translate my ideas, which ran in Latin, into English."† There are still many middle-aged Germans who can well remember Latin being constantly spoken in the classical lessons given in the schools. In 1865, Mr. Matthew Arnold, visiting the Friedrichs-Wilhelm Gymnasium in Berlin, heard the headmaster give a lesson on a Greek play to the highest class in the school. "He spoke Latin to his class, and the class spoke Latin in answer: this is still a common practice in the German schools, though not so common as formerly. The German boys have certainly acquired through this practice a surprising command of Latin."‡ And at the present time, I believe, the power of speaking Latin is cultivated to a high point in many Roman Catholic, and especially in the Jesuit, schools.‖

Thus the great prominence given to Latin in the early stages of much of our secondary education is a faint survival of the state of things when Latin was a living international language. There is no longer any reason for teaching Latin for purposes of oral communication between persons of different nationality. French, German, and English are the languages which, for most purposes, take the place which Latin used to fill. There are, it is true, welcome signs of a growing tendency to re-introduce the habit of speaking Latin in secondary schools. In the Realgymnasium at Kiel the three highest classes are now speaking Latin as part of their Latin lessons. Ultimately, I have no doubt, much more will be done, in some schools, to *begin* the teaching of Latin with more Latin conversation. Such a course gives a boy a feeling for the language. But the aim of this revival will be to enliven and abridge the course of instruction in Latin, not to furnish the boy with the power of speaking the language for purposes of later conversation in practical life. The tendency of the time is rather to compel us to make such abridgements in our classical curricula, such postponements of Latin and Greek to a later stage, and such improvements in methods of teaching them as will, without in any way banishing Latin and Greek from our curricula, afford more time during early boyhood for the acquisition of accuracy and fluency of expression in at least one (and possibly in two) living languages besides the mother tongue.

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* *Letters of Thomas Gray* (Bell, 1900), Vol. I., p. xxvi.

† *Autobiography* (Longmans, 1893), pp. 5-6.

‡ Report of Schools Inquiry Commission, Vol. VI., p. 583.

‖ In the Roman Catholic College at Penang, where native students from all over the Far East were trained for the priesthood, the language spoken by the students, down to three years ago, was Latin. At that time the great increase in the number of Burmese students caused English to be made the language of intercourse in the college.

For boys who have a natural aptitude for classical scholarship let there be access to schools where the classical tradition is preserved and cultivated in its highest form. But can it be maintained that, for the ordinary type of mind and for the common range of modern interests, a predominantly classical education any longer best meets the needs of the case? Supposing that the United States of America had talked German, would not that language have by this time made far greater encroachments on the classical curricula of our English public schools? Yet it is not necessary, and still less would it be desirable, to exclude the classics from our secondary education. Latin, not to speak of Greek, will continue to be, in many branches of study, absolutely necessary for research. But could not a good deal more be done to devise methods for beginning Latin or Greek at a much later stage in secondary education? Would it not be possible to give intelligent boys, at an expenditure of time which, as compared with the present arrangements, would be small, sufficient mastery over Latin (and, if necessary, Greek) to quicken their interest in classical history and literature, and to enable them to make their own way, in their later studies, through authorities written in those languages?* I am thinking of boys who will want to *use their knowledge of Greek and Latin afterwards*, and who, if well started at school, will be certain to improve their knowledge of both languages in later years. Would it not be well to encourage schools, of the same grade in national education, to excel in very different types of intellectual training? One set of schools might carry a classical education to the highest possible point of interest and thoroughness; another set might aim at providing the best possible non-classical education in the world; another at developing, to a very high degree of excellence, a scientific and manual training. Provided that the types of school were clear, and each as good as it could be made, boys would tend to get sorted according to their aptitude and interests. This is not an argument for mere specialisation; but in favour of every school having some marked intellectual characteristic. Each would give a liberal education, but the "high lights" would be different. And, just as in a school which mainly relied on some form or other of linguistic discipline, it would be essential also to cultivate an intelligent interest in physical science, but in a subsidiary way; so also in schools which devoted most of their time to physical studies, there would need to be excellent and systematic teaching in French and German, and training of the literary and historical interests and of the power of ready and accurate expression. Similarly, in a school with a predominantly non-classical curriculum, care would be taken to encourage

* Many of the educational tendencies of the present time recall in a striking manner the theories and experiments of Basedow. He devised (1752-68) a new method of teaching Latin, with a view to shortening the time generally given to the subject.

the study of classical history and literature, and to give the pupils some insight into their bearings on modern life. It is sometimes forgotten how pleasant and useful a possession a somewhat slender knowledge of a great language may become. Goethe and Schiller were both weak in Greek, yet no one will maintain that they did not enjoy, and help the world to enjoy, the beauties of Greek literature. And for many purposes of interesting study, even if a man's Latin is "Priscian a little scratched: 'twill serve."

There are many signs, at the present time, of a strong revival of interest in classical studies, and of a desire to secure opportunities for their free development in national education. In Germany, the best interests of classical education have been threatened by two very different, but not unrelated, causes—pedantry and privilege.

A rather arid kind of classical philology seems to have got hold of many of the German Gymnasien during the middle years of the nineteenth century, and to have done much to impair the educational value of much of the teaching. The natural reaction against this kind of "classical education" is illustrated by the following letter, written by the present Emperor of Germany in 1885, but only recently published.

"Potsdam, April 2nd, 1885.

"Geehrter Herr Amtsrichter,—Accept my heartiest thanks for the two pamphlets which you sent to me. I have read 'What we are Suffering From' with great interest and still greater pleasure. At last, then some one has stepped forth to attack with energy this petrified and most soul-killing of all systems. I subscribe to every word you have written. Fortunately I had two and a half years in which to convince myself of the manner in which our youth are sinned against. On many things which you adduce I have myself pondered in silence. To mention only a few: Of the twenty-one 'Primaner' who composed our class nineteen wore spectacles, and of these three had to call in the additional assistance of a pince-nez in order to read what was on the blackboard!

"Homer, the glorious man, for whom I greatly 'enthused,' Horace, Demosthenes, whose orations must inspire everyone—in what manner were they read? With any enthusiasm for the descriptions of the battle, the arms, or of nature? Heaven forfend! Every sentence was divided and quartered with the dissecting knife of the grammatical, fanatical philologists, until the skeleton was smugly laid bare, and the general admiration claimed for the number of manners in which 'an' or 'epi' could be placed. The Latin and Greek essays (a monstrous nonsense), what an amount of time and trouble they swallowed! And what stuff it was that finally was produced. Horace would have given up the ghost at sight of it!

"Away with this rubbish! War to the knife against such teaching! The result of this system is that our schoolboys are better versed in the syntax and grammar of the ancient tongues than the old 'Greeks' themselves, that they know by heart the generals, battles, and order of battle, in the Punic and Mithridatic wars, but are very much in the dark concerning the battles of the Seven Years' War, to say nothing of the 'far too modern' wars of '66 and '70, which they have not 'yet had'! ! !

"In regard to the physical aspect of school life, I am decidedly of the opinion that the afternoon should be free once and for all. The 'Turnunterricht' (gymnastics hour) ought to give the boys pleasure. Obstacle

races and climbing would be valuable innovations. In the towns where there is a garrison it would be very desirable if two or three times a week a non-commissioned officer were to train and drill the elder boys with the aid of poles, and in place of the so-called class-walks (with elegant walking-sticks, black coat, and cigar) a regular march with some field service, even if it were to degenerate into games and horseplay, would be preferable.

"Our 'Primaner'—we unfortunately had the same faults—were far too *blasé* to take off their coats and get to blows. What can one expect from such little people? *Guerre à outrance*, therefore, against this system. I am right willing to assist you in your effort. I am rejoiced to meet with one who speaks 'German' and acts with energy.—Yours,

"WILLIAM, PRINCE OF PRUSSIA."*

The other enemy to the best interests of classical education in Germany has been the monopoly of certain privileges enjoyed by the Gymnasien. The attempt to establish the Gymnasium in an assured position of social prominence defeated its own object. It made it necessary to impose on the classical schools the impossible task of meeting by one curriculum a number of discordant intellectual needs. It also crowded the classical schools with numbers of boys whose real intellectual interests would have been best met by other studies. Hence there is now a movement to give the Gymnasium much greater freedom to develop its own classical interests. This may involve numerical loss in point of scholars, but it will entail a far greater intellectual gain. One of the most striking features in the report of the Berlin Conference on Secondary Education in 1900 is the memorandum on "Greek Teaching in the Gymnasium" submitted by Dr. von Wilamowitz-Möllendorff, Professor at the University of Berlin. This memorandum contains a powerful argument in favour of the extension of Greek studies in the classical schools, and of a strenuous effort being made to inspire a more living interest in the bearing of Greek thought on modern problems. The motto of it may be said to be "Back to Wilhelm von Humboldt." Just as the excessive utilitarianism of Basedow (1723–1790) was one of the causes of the great reaction in favour of the classical humanities which quickly followed it, so at the present time the commercial tendencies of the age are rousing into renewed antagonism those who believe that disinterested studies are alone worthy of the name of liberal education. The main contention is that in the classical schools boys should be given some larger conception of the immense range of Greek influences,† and, to that end, Dr. von Wilamowitz-Möllendorff appended the outline of a suggested Greek reader, through the pages of which boys might become acquainted with a much larger number of Greek writers than is possible within the somewhat narrow range of the present studies. The professor's actual proposals seem open to the criticism that they could only be effectively carried out by

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* *Morning Post*, January 22nd, 1901.

† *Verhandlungen über Fragen des höheren Unterrichts, Berlin. 6 bis 8 Juni*, 1900. (Halle, 1901; pp. 205–17.)

teachers possessing singular enthusiasm for Greek culture and great educational skill. In the hands of a gifted and enthusiastic teacher the scheme would be admirable, but nearly everything would depend on the teacher being exactly qualified for the work.

The general aim of the memorandum may be summarised in the words of a recent English writer on the "Jeopardy of Greek."

"What we want . . . seems to be more reading and less grammar, more humane and less mathematical methods of instruction, less worship of the fetich 'Attic,' a wider recognition that in a literary study of Greek lies its salvation."*

The Royal Decree of November 26, 1900, ordains that, in the teaching of Greek in the Prussian secondary schools, decisive importance is to be attached to the discarding of useless matters of form, and that every care must be taken to develop the pupils' æsthetic sense, and their perception of the close connexion between the ancient world and modern culture.

Another indication of the rising movement in favour of Greek studies in Germany is seen in the recent publication, by the rector of the famous Landesschule Pforta, of an appeal on behalf of the classical humanities as an essentially necessary part of national education, especially in an age of threatening materialism, and of profound unrest.† There is much in his argument which recalls words used by Matthew Arnold in the preface to his poems published in 1853.

"The present age makes great claims on us: we owe it service, it will not be satisfied with our admiration. I know not how it is, but their commerce with the ancients appears to me to produce, in those who constantly practise it, a steadying and composing effect upon their judgment, not of literary works only, but of men and events in general. They are like persons who have had a very weighty and impressive experience: they are more truly than others under the empire of facts, and more independent of the language current among those with whom they live."

It will be seen that the new time-tables for the Prussian classical schools allow time to be transferred from Latin to Greek in the three highest classes, thirteen lessons a week being devoted to the two classical languages§. Moreover, the Imperial Decree recognising, under certain conditions, the intellectual equality of the three types of secondary schools, will doubtless in the end relieve the classical schools of much uncongenial material, and leave many of them free for new developments in higher teaching.

The experience of the last few years seems to have deepened the feeling in favour of giving a free hand both to classical and to non-classical education. There is a strong body of opinion favouring the Realschulen, as less likely than the Gymnasien to over-stimulate speculative ideas among the rising generation. Archdeacon Semler, of Halle, who in 1708 opened the first Realschule in Germany,

* H. W. Auden in *Blackwood's Magazine*, April, 1901.

† *Humanistische und Realistische Bildung*, by Prof. Dr. Christian Muff. (Berlin, 1901.)

§ See Appendix III

definitely announced it as his desire to guard boys against "empty speculations and useless subtleties,"[1] and to occupy them with real things and useful objects. Something of the same idea can be traced in the present development of Realschulen. Yet no course of liberal education can exist without close contact with ideas and ideals as well as with what (by a rather question-begging phrase) are called "facts." Ethical and social problems come within the view of a non-classical, as of a classical, school. But more than ever is it realised that those who would impart interest in political and social and ethical questions through the vehicle of modern history often have to walk

per ignes
Suppositos cineri doloso.

In dealing with classical antiquity, a teacher may, indirectly but not the less effectively, refer to many problems of modern life, with far less risk of incurring suspicion of political propaganda or partisanship.*

(3) The renewed vigour of the advocates of classical education is in itself a tribute to the force of the utilitarian tendency which has caused so much alarm among the friends of liberal education in Germany. But that utilitarian tendency is far from having captured the German secondary schools. Except the specifically commercial schools (Handelschulen), the latter are organised, almost from top to bottom, to resist any undue development of narrowly utilitarian studies. The Germans maintain that a boy will in due time be all the better a man of business if he does not specialise too soon; and that the superstructure of technical knowledge is best raised on a firm basis of general culture.

But "general culture" threatened at one time to become a fetich in German education. Many of the curricula were based on the assumption that, before leaving school, a boy ought to have acquired a mass of information on a great variety of subjects, and that it was expedient for him to carry away with him into life a large store of intellectual capital as a basis for his professional and other labours. Obviously there is much that is sound in this view; but it also has its perils. It took little account of the fact that, as has been well said, "the art of life consists in the appropriate choice of our ignorance." The practical effect of it often was that the boys were made to learn too much. Against this kind of over-burdening there has been a healthy reaction. No one has spoken more emphatically on the subject than did the Kaiser himself at the Berlin Conference on Secondary Education in 1890. "It is absolutely necessary," he said, "that we should reduce the number of hours of work. We ought not to strain the bow further or leave it as

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* See Appendix V. Limitations on teaching contemporary French History in French Secondary Schools.

tense as it is. We must lessen our demands." But it is very difficult to give effect to these views in a country where there is so strong a movement towards higher studies and towards those professions to which the secondary schools are the gate. The effect of the new time-tables of 1901 will be actually to increase the number of weekly lessons in the three highest forms of all types of nine-year schools.

It remains to be seen how far the growing commercial and industrial interests of Germany will affect the studies in secondary schools. Many of the Realschulen take a legitimate pride in their success in giving an air of "reality" to their lessons.* And it can hardly be questioned that there has been during the last twenty years a distinct growth in Germany of a feeling that the secondary schools ought to pay regard to the practical needs of business and of modern administration.† But the tradition in favour of a liberal education is so strong, and the practice of the schools is so carefully adjusted to the claims of a well-proportioned intellectual development, that Germany is far less likely to suffer than are England and America from the ill-considered pressure of those who expect from the schools what it is not the true business of a school to give. We may readily admit the truth of the old saying, *Non scholæ sed vitæ discendum.* But what a school giving a liberal education has, above all things, to keep in view are the wider and more lasting concerns of life, not the mere dexterities of livelihood. "There is much dispute," wrote the late Rector of Lincoln College in 1880, "as to what should be taught in middle schools. Let the answer be, *that which humanises.* The aim of the school is not the storing of the memory with knowledge. That, and that only, is education which moulds, forms, modifies the soul or mind."

(4) In his address to the Conference on Secondary Education

* Herr Lehmann (*Erziehung und Erzieher*, 1901) points out that the development of German commerce and sea-power is having a distinct influence on the ideals of German education, and that it is leading (in the maritime districts especially) to increased attention being given to the English language, and, it may be added, to the history and geography of the British Empire, and to the significance of sea-power. Is it not historically significant that the new Royal Decree on secondary schools in Prussia, which marks a new era in Prussian education, was signed last November on board the "Kaiser Wilhelm II." at Kiel? There has recently been published in Leipzig a "Naval Reading Book" for the use of higher and middle schools, its motto being the words "Germany's future lies on the water," and its aim to interest German boys in naval and marine subjects.

† The German Foreign Secretary (Baron von Richthofen) recently took occasion to comment on the fact that "the Gymnasien are entirely deficient in the machinery for educating our officials. The junior members of the Civil Service can neither write French nor read English." (*Times*, June 10th, 1901.) The Royal Decree of November 26th, 1900, directs that in the teaching of modern languages in Prussian secondary schools fluency in speaking should specially be aimed at as well as the accurate understanding of current authors.

held in Berlin in 1890, the Kaiser said that, in his opinion, the Prussian secondary schools, and more especially the Gymnasien, "had caused an excessive over-production of highly educated people, more than the nation could bear and more than the men so educated can bear." These words recall the saying of the Duke of Wellington. "You are over-educated for your intellect." The Kaiser went on to say, "the expression 'academic proletariat,' which we owe to Prince Bismarck, is a true one. The whole body of so-called 'Hungerkandidaten,' especially those gentlemen who write for the Press, are a danger to us."*

In the Royal Decree issued in November, 1900, as a result of the deliberations of the Berlin Conference on Secondary Education, it is expressly stated that the Abschluss-prüfung has disappointed expectations and "has not arrested the excessive rush to the universities."*

The growth of German industry and commerce will probably do something to relieve the congestion of the learned professions, of which many Germans complain.

(5) It is generally recognised that the German schools and the German schoolmasters have had a great deal to do with the establishment of German unity. Speaking in 1895, Prince Bismarck said:—"If I had not found in our nation the preparatory work of the secondary teaching profession, I do not believe that my work, or the work in which I have collaborated, would have met with such success."†

But this was not the only comment which Prince Bismarck made on the working of the German higher education. On another occasion he said:—"We shall be ruined by examinations; the majority of those who pass them are mentally so run down that they are incapable of any initiative ever afterwards. They take up a negative attitude towards everything that is submitted to them, and what is worst of all, they have a great opinion of their capabilities because they once passed all their examinations with credit."‡

With regard to the results of German secondary education on the formation of character, I may quote three recent expressions of opinion—one that of an English observer, the other two from the pens of German writers. A few weeks ago, the well-informed Berlin correspondent of the *Times* spoke of "the class of German men of business" as being "unsurpassed in intelligence and energy." These men are the product of German secondary education, and, in large measure, of the Realgymnasien in particular. The correspondent went on to contrast unfavourably, with the

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* See Appendix I.

† Quoted in Mr. Ware's *Educational Foundations of Trade and Industry*, p. 288.

‡ *Conversations with Prince Bismarck.* Von Poschinger. Ed. Sidney Whitman. (Harper, 1900) p. 290.

men of business, the German official classes, who are the product, for the most part, of the Gymnasien. "The German official classes, with few exceptions, have become pitiably inferior in ability and enterprise to the Germans who are making their nation respected and influential throughout the world."* In this connexion, it should be remembered that an active and intellectual form of business life is one of the finest practical educations in the world; and that when such practical experience is superadded to the sound basis of a liberal education, the man who acquires it often goes on developing intellectually far longer than those of his contemporaries who have adopted a career of more subordinated activity and of less strenuous effort. One inference to be drawn from the correspondent's remark is that German commerce and industry have derived great advantage from the excellence and liberal character of German secondary education. The German view is that intellectual narrowness in business is only another form of pedantry. The leaders of German industry and commerce are resolutely opposed to any narrow form of commercial education. They would endorse the view of the writer in Addison's *Spectator* that "a man who has been brought up among books and is able to talk of nothing else, is a very indifferent companion, and what we should call a pedant. But we should enlarge the title and give it to every one that does not know how to think out of his profession and particular way of life."

The second expression of opinion, to which I referred above, is contained in a work recently published by an experienced German schoolmaster. He maintains that during the last generation the German nation has lost much of its former moral idealism, but gained greatly in its collective public spirit. Opinion moves more in masses than it did. The older kinds of individualism have been weakened. This has naturally led to the diminution of strong individualities of character. On the other hand, there seems to be more consciousness of class and social distinctions—partly in consequence of the need of some barrier against the levelling forces which tend to efface many of the older social landmarks. In another part of his book, he tells his readers that he had occasion to reproach a young man for the weakness of purpose which he showed on a critical occasion. "It is all the fault of our education," the youth replied, "we are always kept in leading strings both at school and at home; how can you expect us to have strength of purpose?"†

The third expression of opinion is contained in an article on "The Importance of Example in Education," by Dr. Wilhelm Münch, Professor at the University of Berlin. He is referring to the teaching of history in secondary schools, and more especially to the moral danger involved in that kind of history teaching which, with a great show of scientific generalisation, affects to explain all heroic action

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* *Times*, May 4th, 1901.

† *Erziehung und Erzieher*, by Rudolf Lehmann. 1901. pp. 47–50, p. 121.

and individual effort as being but the necessary outcome of historical conditions and of environment. Such teaching, he suggests, may weaken in the pupil's mind a conviction of the moral power of the individual will, and thus impair his strength of purpose and of character.* The German mind is sensitive to intellectual suggestions. It quickly takes colour from ideas to which the mind of the ordinary English boy would be healthily, if somewhat obstinately, impervious. Probably the characteristics of the German mind have had a good deal more to do with determining the form of German education than the latter has had to do with determining German intellectual tendencies. But the school is a powerful cause, as well as an effect, of national characteristics. And it is not improbable that the latent assumptions of certain kinds of history teaching (the assumption, for example, that economic causes are sufficient to explain all social and even many spiritual movements) have been not without their influence on some parts of German character. History is one of the most difficult of all school subjects to keep clear from mischievous bias. It may easily become (without any conscious unfairness on the part of the teacher) a channel for diffusing false ideas both as to the past and the present. Some German writers seem to think that, by adopting the historical treatment of many controverted subjects, we should escape many of the educational difficulties which arise out of our moral and intellectual disagreements.† But is not such a view too sanguine? Does it not unduly overlook the fact that the fundamental differences lie in our judgment as to the moral worth and significance of contending aims and beliefs; and that, though we may rid ourselves of much misunderstanding by trying to see things in their historical perspective, and though we may root out many false impressions from our minds by going back to the evidence for the facts on which those impressions are supposed to be based, nevertheless some of the deepest causes of our disagreements are inherent in the facts themselves, and neither side can necessarily accept as dispassionate, or as accurate, or as sufficient, the "history" relied upon by the other? History plays an important part in the curriculum of German schools, and it is much to be hoped that the subject may be made (as abundant experience shows it can be made) a powerful factor in our English education also. But all depends on how it is taught. The mere cramming-up of text books is worse than useless. The teacher must be, by natural aptitude and instinct, an historical student himself, or he cannot hope to infect his pupils with a love of the subject or to impart to them the attitude of mind which approaches all questions from the point of view of their history and development.‡ But it

* *Über Menschenart und Jugendbildung*, pp. 213–14 (and footnote).

† Especially Professor Rein. *Am Ende der Schulreform?* p. 40. (Langensalza, 1893.)

‡ *Cf.* Prof. Withers' lecture on the Teaching of History in England in *Education in the Nineteenth Century* (Cambridge University Press, 1901), especially p. 115

is just here that a new and more insidious danger arises. In the teacher's view of "development" there is necessarily a latent theory as to the general nature of human progress, and of its relation to unseen forces. In German education, this abstract side of things is made more prominent than in English. The German always tries "to think things out." And excellent as is this mark of German thought and teaching, it leads nevertheless to the danger of too much abstract generalisation in various subjects, and especially in history. A leading authority on German education, from whose writings I have already quoted, warns the German teachers against this special tendency to put things too much in the abstract, and too little in the concrete.* The Royal Decree of November 26, 1900, directs special attention to the fact that, in the teaching of history in the Prussian secondary schools, "two gaps are still felt: the neglect of important periods of ancient history, and the too slight treatment of German history of the nineteenth century, so full of stirring memories and of great deeds for the Fatherland." There seems, in fact, to be in many quarters a feeling that the critical, abstract, generalising kind of history teaching has in some ways had mischievous results on the minds of the pupils. There is a reaction in favour of a more ethical and human treatment of history, the picturing of great characters, the telling of heroic deeds, the clear presentment of facts, rather than generalisations from the facts. Thus, as in so many other points, there are signs of a closer approximation to the English view. But, after all, no small part of the difficulty remains, because our choice and judgment of great characters and of heroic struggles depend in large measure on the ethical presuppositions which underlie our view of history. Those presuppositions may be latent or unconscious, but they exist and have their influence nevertheless.

Every kind of education has the defects of its qualities, and the severe intellectual discipline, through which German boys have to pass at school, must in many cases somewhat impair their physical strength. Still more frequently must it debar them from enjoying the pleasures of outdoor games and exercises as regularly and as heartily as is the case in England. There is a marked tendency in German educational literature at the present time to hold up to admiration the games in English schools. Professor Wilhelm Münch has recently expressed regret that in German schools the masters do not find pleasure in taking part in the boys' games as they do in England;† and Herr Lehmann observes that the example of the English, who have been the first among modern nations to lay great stress on the care and physical development of the body, has of late years been having an ever-growing influence on German ways of life.‡ There is no doubt that a good deal of

* W. Münch, *Über Menschenart und Jugendbildung*. 1900. p. 207.

† *Über Menschenart und Jugendbildung* (Berlin, 1900), p. 205.

‡ *Erziehung und Erzieher*, p. 31.

the success of many of our schools in forming character is due to the place held by school games in our secondary (and, happily more and more, in our primary) education. One result of our school games is that there is probably no country in Europe in which so large a number of boys are heartily sorry when they come to the end of their schooldays as is the case in England. It is an indication of the growth of opinion in favour of school games in Germany that the Royal Decree of November 26, 1900, directs that in the Prussian secondary schools more attention shall be paid in future to physical exercise, and to the need for longer intervals for recreation.

(6) An American writer, when touching on some of the defects of the German school system, remarked in 1898 that, "for upwards of a century, the management of the schools has steadily been becoming more bureaucratic. . . . Year by year new regulations are made which tighten the grip of the central authority, and leave correspondingly less freedom for local option. The trend is towards officialism and formalism."* This is a feeling which has been strongly expressed by many German writers.† No one, however, has rendered such brilliant service to the cause of educational freedom in Germany as Dr. Friedrich Paulsen, of the University of Berlin. His great work on the history of German higher education‡ contains many powerful arguments against excessive bureaucratic interference with education. Education, he argues in effect, is largely a spiritual process. You cannot cage it in by administrative contrivances. You can help it by organisation, by encouragement, by counsel, by money grants, above all by granting it large liberty for self-development. But you cannot predetermine its course by State rules; no one can fully predict the right lines of its future development; you must trust, in large measure, to the good judgment of the nation, above all to the good judgment of those who actually need the schools. The essential things in education are intellectual interest, freshness of teaching, human sympathy, devotion to high aims. These are spiritual things, and the spirit, like the wind, bloweth where it listeth.

"In no sphere," says a German writer, "is the deadening influence of bureaucracy so perilous as in education, unless indeed we do not care at all whether our schools are, or are not, permeated with the bracing spirit of manly independence. What will become of a nation when the intellectual vigour of those who are destined to be its leaders is reduced betimes to respectable mediocrity, and

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* Dr. Russell, *German Higher Schools* (Longmans: New York and London, 1899), p. 412.

† For example by Dr. Paul Cauer in *Staat und Erziehung* (Kiel and Leipzig, 1890), and R. Lehmann in *Erziehung und Erzieher*, 1901, especially p. 137.

‡ *Geschichte des gelehrten Unterrichts auf den deutschen Schulen und Universitäten.* (Leipzig: Veit. Second edition. 1896. Two volumes.)

when the rising generation is led to think, by the importance attached to certificates and diplomas, that a man's real dignity depends on the number of examinations which he has managed to pass?"

To an English reader one of the most striking features of many recent German criticisms on their secondary schools is the often expressed desire for more freedom of educational development. "Our German education," says a recent writer, "is too much cabin'd and confined. We must preach freedom as the remedy." In some measure this movement may be traced to the far-reaching influence of Professor Paulsen's book; but it is chiefly due to the pressure of practical necessity, and to a consciousness of the danger induced by elaborate State restraints. The old ideal of the Gymnasium was to produce "all-round cultivated men" to serve the State. But what is "all-round cultivation"? Fifty years ago the answer seemed to most persons simple enough. But to-day the position is very different. Knowledge has increased so enormously in bulk; the problems of Government are so much more complex than they were; the range of possible usefulness to the State is so much wider than it used to be, that the attempt to give, in one type of school, the whole of what can justly be called "liberal culture" broke down hopelessly and finally. Hence began the differentiation of schools, and the recognition of three marked types. But the next stage in the process was the recognition of the fact that, within each type of school, there is also urgent need for still further freedom to differentiate. It must not be forgotten, however, that "crossing" of curricula is almost as complicated a question as "crossing" a breed of animals. Violent "crossing" may destroy what has been gained by slow increments of experience through many years. Yet variety, adjustment to local needs, and permission to develop individual characteristics, are all becoming more necessary and more inevitable. The distinctive mark of the Royal Decree on Prussian Secondary Education, issued in November, 1900, is its recognition of the need for more freedom of educational development. Many Germans fear what they call "Americanismus," and some recent changes in German education certainly imply a closer approximation to the standpoint of Emerson, who said that "education often wastes its efforts in attempts to thwart and balk the natural magnetism, which, with sure discrimination, selects its own," and that "what we do not call 'education' is more precious than much of what we call so."

Any belief, however, in mere *laisser-faire* in regard to national education is the last thing which most Germans would be likely to hold. They are convinced that the State, as representing the community, must play a decisive part in educational administration. They are well aware that more "freedom" may be enjoyed under a well-adjusted and skilfully maintained system of State organisation than is usually attainable in a mere scrimmage of ill-regulated private interests. But it remains to be seen how far the Germans will reach a practical agreement as to the right limits of State control

over so sensitive a part of national life as education must ever be. It will indeed be a conspicuous triumph of organisation if they succeed in combining the high intellectual standard which the State has helped to uphold and enforce, with the variety of educational experiment which seems to be called for, more and more impatiently, in view of the complex and ever-changing needs of modern life.

(7) The attitude of public opinion and of the Prussian Government towards the remarkable experiment known as the Frankfurt Curriculum shows the same tendency towards freedom of educational development. The chief features of this experiment have been fully described in an earlier volume of this series.* Its object is to secure a common curriculum for the three earliest years of secondary school-life (*i.e.*, from nine to twelve) by means of the postponement of the beginnings of Latin teaching till a boy's twelfth year. Certain administrative advantages would be secured by such an arrangement, as, instead of having three separate schools in a town (classical, semi-classical and non-classical), there might be one school with a common foundation of three years study, out of which would rise three (or two) alternative courses of six years' further study, between which alternatives a boy's parents would have to choose when he was twelve, instead of (as is normally the case) when he is nine. Thus, instead of having three parallel types of school, each wholly separate, the "Reform School" would rise like a three-pronged fork out of a single handle.†

The Frankfurt Curricula have been a subject of almost incessant debate in German educational circles during recent years, and few scholastic experiments have had the advantage of being commended to the general, as well as to the expert, public with such lucidity of thought, such charm of style, and such insight into the significance of social movements as characterise all Dr. Reinhardt's articles and addresses on this important subject. It is not too much to say that the reader rises from the perusal of any of Dr. Reinhardt's pamphlets with a deepened respect for the writer of them and with a warmer admiration for his literary skill.‡

Opinion is very far from being unanimous as to the wisdom of

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* *Special Reports on Educational Subjects.* Vol. III., pp. 200–212 and 461–472. For the curricula, see Appendix IV. below. I have not discussed the Altona curriculum in the present paper, because the Frankfurt plan is now being taken as the best model.

† For a suggestion on these lines as regards English secondary education, see Mr. S. R. Hart's paper on *Languages in Secondary Day Schools*, in Vol. viii. of this series.

‡ The following references may be found useful:—*Die Frankfurter Lehrpläne* (Frankfurt a/M. 1892. Diesterweg); *Die Umgestaltung des höheren Schulwesens* (Frankfurt a/*M*. 1892. Diesterweg); *Die Bedeutung des gemeinsamen Unterbaues für die höheren Schulen* (Comenius-Blätter. 1899. Nos. 7–8. Berlin: Gaertners Verlagsbuchhandlung). Also see Dr. Reinhardt's speeches at the Berlin Conference on Secondary Education, 1900, especially pp. 45–50.

the Frankfurt Curricula. The upholders of the view that each school ought to have a precise aim towards which to direct its activities resent the tendency to turn a school into "a maid-of-all-work."* Those who want an intenser and more prolonged course of classical education in the Gymnasien naturally object to any proposals which would put off the beginning of Latin to twelve years of age and of Greek till fourteen. Others maintain that the Frankfurt experiment has been tried under too favourable conditions, and that therefore there is no certainty that it would succeed equally well elsewhere. For example, it is alleged (with what truth I cannot say) that the teachers in the Reform School at Frankfurt are specially good; that the boys are picked material (the stupider boys in Frankfurt going to other schools!); and that (in the Goethe Gymnasium, particularly) the classes are remarkably small when compared with the ordinary German practice. Others, again, object to the plan of beginning French before Latin, "the daughter before the mother."† But the chief reason for opposition is dismay at the idea of the surrender of the citadel of classical education, and at the almost necessary abandonment of some of the present methods of teaching.

The Frankfurt plan, however, does not propose to supersede all other plans. It only claims to take its place among a number of varying curricula. Perhaps there was a time when its advocates took a little for granted the possibility of its general adoption, but that is frequently the case with the promoters of educational novelties. It may be granted also that the plan implies first-rate teaching, and small classes, and a very careful use of every hour of school time. Doubtless, too, it will involve a heavier strain on the strength and energies of the teachers.

This point is a serious one, and calls for some further consideration. One of the most striking developments in German education during recent years has been the rise of "the new method" in modern language teaching. The details of this "new method" have been fully described in an earlier volume of this series,‡ and need not be recapitulated here

But the successful application of the "new method" throws a considerable strain on the teacher, and recent researches have disclosed the fact of a somewhat alarming rate of mortality among the modern language masters in Prussian secondary schools. Among the Prussian secondary schoolmasters, in general, there is a rather high mortality, the statistics for the ten years 1888–97

* For this point of view cp. F. Hornemann, *Die neueste Wendung im preussischen Schulstreite und das Gymnasium* (Berlin: Reuther und Reichard, 1901), especially pp. 32–33.

† For some of the above and for many other criticisms, see Prof. Dr. Fritsch, *Das Reform-Gymnasium mit besonderer Beziehung auf Hamburg.* (Hamburg: Herold, 1901.)

‡ *Special Reports on Educational Subjects.* Vol. III. Also sectionally reprinted under title of "Special Reports on Modern Language Teaching." (Eyre and Spottiswoode. 6½d.)

showing that they die on the average four years earlier than their fellow-citizens. But the case of the modern language masters is especially bad, as during the same period of years their deaths occurred on the average no less than ten years before the period of normal expectation.* A distinguished professor of education in Germany is reported to have said that "the number of modern language masters who have broken down is very great. Nearly all of them are out of sorts. What is the result of the number of lessons they have to give? We are constantly hearing now that one, now that another, has broken down." This is partly due to the intense interest which these men take in their work, and to the energy with which they constantly visit foreign countries during their holidays in order to improve their knowledge and pronunciation of the languages which they teach. But their actual hours in school are long, and during the lessons the strain is almost incessant.

Care will be necessary if the good of the "new methods" is to be got without paying an undue price for the reform. And, in this, as in so many other educational developments, the new improvements presuppose special ability and aptitude on the part of the teachers. No merely mechanical application of the new methods will suffice. More than ever depends on the personality, the natural gift, and the practised skill of the teacher. What has been said of naval enterprise may also be applied to education. History shows that "good men with poor ships are better than poor men with good ships."† Good teachers with poor methods are better than poor teachers with good methods. What is wanted is that the good teachers should have the most improved methods, and the good sailors the most improved ships.

A secondary schoolmaster in Frankfurt-on-the-Main has recently published a pamphlet which contains a number of interesting criticisms on the "new method" of teaching languages.‡ He declares that the results have not always been proportionate to the great efforts put out by the teachers to secure them. He refers to the exhausting nature of the work which they often entail. He protests against the excessive use of illustrations, and against the tendency to make things too easy for the pupils. He points out that some of the advocates of the new method were at one time inclined to attach too little weight to the claims of grammar. In short, he argues, the "new movement" represented a reaction against a rather stupid kind of routine, and, like nearly all reactions, went a little too far. What is wanted is a just balance between the old method and the new. This is the opinion which seems to have gained most ground in England during recent years. But,

* *Der höhere Lehrerstand in Preussen, seine Arbeit und sein Lohn*, by Dr. H. Schröder (Kiel and Leipzig: Lipsius and Tischer, 1899), pp. 47–55.

† Mahan, *Influence of Sea Power upon the French Revolution and Empire*, 1793–1812. (Sampson Low. 1892.) Vol. I. p. 102.

‡ Dr. Paul Wohlfeil, *Der Kampf um die neusprachliche Unterrichtsmethode.* (Frankfurt a/M.: Neuer Frankfurter Verlag, 1901.)

in any case, it is not the method in itself, but the teacher who uses the method that chiefly matters. The personality of the teacher, his artistic skill, and his love of his work matter even more than they mattered before.

The "Frankfurt Reform," in secondary school curricula, is so closely bound up with the introduction of new and brisker methods of teaching (in the classical, not only in modern, languages) that it is still too soon to pronounce with any confidence on the success of the experiment. But the statistics show that the new scheme has met a widely-felt need. In Prussia no less than sixteen Gymnasien and Realgymnasien have been remodelled on the Frankfurt plan, while in Germany, outside Prussia, seven more have adopted the same arrangement. But the details of the organisation vary a little in various places. The Altona plan has been adopted in five cases. The following table shows how the Reform Schools (whether on the Altona or Frankfurt lines) are distributed at present among the different provinces of Prussia :—*

East Prussia - - -	None.
Posen - - - - -	
Pommern - - - -	
West Prussia - - -	1 [Danzig.]
Schlesien - - - -	2 [Breslau, 2.]
Brandenburg - - -	2 [Schöneburg and Charlottenburg.]
Sachsen - - - -	2 [Magdeburg and Naumburg.]
Schleswig-Holstein - -	2 [Altona and Kiel.]
Hanover - - - -	3 [Hanover, Harburg, and Hildesheim.]
Hessen-Nassau - - -	3 [Frankfurt a/M, 3.]
Westphalia - - - -	3 [Iserlohn, Lippstadt, and Witten.]
Rhine Province - - -	3 [Barmen, Remscheid, and Solingen.]

Englishmen may well hope that, in the Reform Schools, there may be found some solution of many of the educational difficulties which press heavily on secondary schools at the present time. It would help many English secondary schoolmasters, especially in industrial districts, if it were found that Latin could be safely put off till a boy is twelve. Would it not be well to try some systematic experiments in England in order to test the point? The general results of such experiments are regarded with satisfaction in Prussia, as is shown by the following passage in the Royal Decree relating to secondary schools in Prussia, November 26th, 1900.

"The establishment of schools following the Altona and the Frankfurt Curricula has on the whole proved beneficial to the places where they exist. Through the fact that the earlier stages of their curriculum are the same as those of the non-classical schools, they constitute no inconsiderable social gain. It is my wish, not only that the experiment should be continued in a manner appropriate to the end in view, but that, where the given conditions prevail, attempts should be made on a more extended basis."

* Summarised from Dr. Meinertz's speech at the Berlin Conference on Secondary Education, 1900. (*Verhandlungen über Fragen des höheren Unterrichts. Berlin*, 6 *bis* 8 *Juni*, 1900, pp. 44–45.)

To sum up, there are many fundamental differences between secondary education in Prussia and in England. The Prussiana know exactly what they have got in the way of secondary schools and secondary school masters. We do not. They know what each school teaches, when it teaches it, and how it teaches it. We do not. They have a clear definition of what they mean by a Higher, or Secondary, School. We have not. They have a clear intellectual aim (perhaps too clear an intellectual aim), and have for years patiently adjusted all the means in their power to achieve that aim. Our aims fluctuate, and (partly with good results, partly with bad) we shrink from formulating them. Their schools are almost exclusively day-schools. Our most famous and influential schools are boarding-schools. Their teachers are all members of the Civil Service; have sometimes to wait till they are thirty-seven years old before they get their permanent positions; are paid according to a definite scale of salaries (lower than those paid to the legal branch of the public administration); have pension rights on retirement; do not keep boarding-houses; are not paid capitation-fees on the number of boys in the school, and have very little to do with the boys outside the school-room. Our secondary school masters are not members of the Civil Service; get their definite appointments much earlier in life; receive incomes which vary between very wide limits in different schools; often have no claim to a pension, and never have one paid by the State; in some cases render the most valuable part of their services to education (and derive the largest part of their income) as masters of boarding-houses; are almost always (if they are headmasters) paid a capitation-fee on the number of boys in the school, and therefore have a direct interest in having a large school; and devote a great part of their life and strength to most admirable work among the boys outside the school-rooms. It would be hard to say which is the more devoted class—the Prussian secondary school masters or the English. But, as a general rule, they are devoted to very different things.

In Prussia, the system of secondary education is organised like a sort of intellectual post-office. Just as with us a red pillar-box connotes certain services promised by the State; so in Prussia, a public secondary school connotes a certain kind of intellectual service guaranteed by the State. With them, the State is the unit; with us, the unit is the institution. Our secondary school system is a federation of more or less independent institutions, more or less conscious of a general community of interests; more or less in the habit of comparing notes on matters of educational experience; and all, though in varying degrees, conscious of the fact that they are doing a great national work. In Prussia the whole system is continually under the watchful eyes of the State. In England, the State knows very little about what is really going on in the secondary schools. In Prussia, secondary education can, so to speak, be audited at an hour's notice. In England, such an operation

would, if ever necessary, be impossible, because no man living knows even the postal addresses of all our "secondary" schools. In Prussia, secondary education has virtually been collectivised. In England, the secondary schools are, in the words of a recent French writer, "citadelles du particularisme." In Prussia, a schoolboy seems to regard his school as he might regard a railway station—a convenient and necessary establishment, generally ugly to look at, but also, for its purpose, efficient. In England a boy who is at a good secondary school cares for it as an officer cares for his regiment, or as a sailor cares for his ship. To him the very name of his school means something which

> "Every one of her sons must hear,
> And none that hears it dare forget."

The Prussians lay stress on knowledge; we, on character. Their schools are meant to manufacture knowledge, and do what they are meant to do. Ours are prized most highly when they turn out men. Prussian schoolboys think a great deal more about their lessons than ours generally do. But ours think a great deal more about the other sides of school life than they. At bottom, the two peoples do not mean the same thing by the word "education." But no nation can stand alone. Year by year, Germans and Englishmen come more and more into contact with one another in the natural course of trade and of other international affairs. Both nations have to meet the same outside tests; and, therefore, each is considering wherein the education of the other is better and deeper than his own. Each finds that the other has much to teach him. But each knows too that he cannot change his nature, or jump off his own shadow, and that his system of national education has not become what it is by accident, but by a very slow and often unconscious adjustment of means to certain necessary ends. In a sense, it is true that every nation has the education it deserves. Yet it would not be possible for Prussia to superadd to its own educational excellence all that is differently excellent in English education. The limits of time and of human strength forbid it. Similarly, neither can we take all that is best in Prussian education and superadd it to what is excellent in the education which we have already. But each can discard something, and (at least, so it would appear) will have to discard it. If they learn too much, do not we learn too little? If we organise too little, do not they organise too much?

If, for a time, the English and Prussian systems of secondary education seem to move in precisely opposite directions, it will be because they are moving towards a common point in the wide space which at present lies between them.

CHAPTER IV.

Movements of Opinion in France and America in regard to Secondary Education.

In order to show that the unrest in secondary education is not local or national, but almost world-wide in its extent and international in its significance, I propose in this chapter very briefly to refer to what has recently been done or written in regard to the subject in France and in the United States of America. Adequately to discuss the question, as it affects either of those countries, would require a book to itself. In France alone there have recently appeared a number of most interesting volumes of the report of the Parliamentary Commission on Secondary Education, over which Monsieur Ribot presides, as well as a large number of other works written from very different points of view, but all devoted to what the French call "the crisis in secondary education." In America the problem, though less immediately urgent, is on a far vaster scale and presents some elements of even greater difficulty. Everywhere the problem is, at bottom, a social and an ethical problem. But it is also, necessarily, an economic problem, and only incidentally a question of the choice of subjects of study, and of the method of studying and of teaching them.

i. In France.

It is perhaps some consolation to us in England, when we hear, or have to make, complaints about our own secondary schools, to remember that, in all the chief countries in the world, the same questions are pressing on public attention. *Nemo sorte sua contentus.* "All over the world," says M. Ribot, "one hears complaints about secondary education."* So universal is the difficulty that a recent French writer has described it as an "educational phylloxera."† And it is still more consoling to realise that both the French and the Germans candidly admit that they have much reason to admire some of the results of the work of our good English secondary schools, and many of the conditions under which that work is done. They admire the long tradition of our great public schools; they admire our healthy (but not our excessive) interest in outdoor exercises and in school games; they admire the freedom of our schoolboys; they admire the part which the boys take in the management of school discipline; they admire our beautiful school-buildings; they admire the patriotism which our great schools evoke among their scholars, past and present; above all, they admire the relations between boys and masters; but, on the other hand, they are very far indeed from admiring the intellectual

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* *Enquête sur l'Enseignement secondaire.* Vol. I., p. 185. (Paris, 1899.

† Pierre de Coubertin, *Notes sur l'Education publique.* (Paris: Hachette, 1901.)

standard of our secondary schools. They speak of it with some contempt, and often fail to realise in how many respects and in how many schools the intellectual work is of high excellence. They judge by the average. Dr. E. von Sallwürk, an eminent educational authority in Baden, has recently remarked, in an appreciative comment on English education, that our English secondary schools suffer from some of the effects of their freedom from State control. No one has the right to prescribe their curricula; but they are often so worried with having to prepare pupils for all manner of outside examinations, that they cannot give quiet and undivided attention to their regular course of study, They are like factories, he says, which take orders of all kinds at any time, and are prepared to deliver the finished goods at whatever time may be desired. Therefore he finds them, as compared with the German secondary schools, lacking in a clearly formulated aim and intellectually disorganised.* A Frenchman, who has had a good deal of experience at an English public school, has summed up his judgment on our secondary education in the following words: "A boy at an English public school has qualities which a French schoolboy does not possess, but those qualities are moral and not intellectual. In English education there is a very weak point—and that is the instruction."† And M. Marcel Prévost declares that the ordinary Englishman of the middle and upper middle classes is less cultivated than an average German, Frenchman, or Italian holding the same kind of position in society.

"On vous dira, je le sais, que les sports tiennent le premier rang outre-Manche, et qu'il faut absolument faire comme les Anglais. . . . Quant aux sports masculins, ils sont en effet répandus, développés à l'excès. Résultat: une nation où l'on doit admirer l'énergie des hommes, sans qu'il soit possible de dissimuler leur faible culture. Auprès d'un Allemand, d'un Français, d'un Italien de même rang social—exception faite de l'aristocratie—un Anglais sincère sera forcé d'avouer l'infériorité de sa culture. La guerre du Transvaal vient d'illustrer ce fait d'une façon mortifiante pour nos voisins. Leur exemple démontre combien il est périlleux de glorifier outre mesure le muscle dans l'éducation. Le muscle est et doit rester l'humble serviteur de la tête."‡

French secondary education has two qualities in consummate excellence. It cultivates and transmits a great tradition of literary style; and it stimulates clever boys to "find themselves" intellectually while they are at school. On the other hand, it has two great defects. It produces too many "functionaries," and it is much too exclusively literary and "intellectual." That is to say, it is weak in physical training: school games are practically non-existent in it; the boys have little chance of free development and of learning to act on their own responsibility; and the form-

* *Deutsche Zeitschrift für Ausländisches Unterrichtswesen.* January, 1901.)

† *Comment élever nos fils.* Joseph Duhamel. (Paris: Charpentier, 1901.)

‡ *Le Temps,* March 7th, 1901.

masters hardly see anything of the boys out of school.* In the third place, it has to contend against three great difficulties: (1) there is an increasing rivalry between the State schools, which are secular, and the private schools, which are conducted by the clergy of the Roman Catholic Church; (2) the desire for social advancement is constantly overcrowding the secondary schools with boys who had better have been educated somewhere else; and (3) the whole system suffers from excessive centralisation.

For some few years past many Frenchmen have been saying such hard things about their secondary education that the foreign reader finds himself beginning to believe that things cannot really be so bad as they are made out to be. This view is happily confirmed by the temperate evidence given by M. Jaurès before the Parliamentary Commission. He said that he did not take so gloomy a view as many of his colleagues about the actual condition of secondary education in France.† But "no one is satisfied with it," says M. de Courbertin.‡ "Our secondary education has been in decadence ever since the Revolution" was the opinion expressed to the Parliamentary Commission by M. Bertrand, Professor of Philosophy of the Faculty of Lyons.‖ "A majority of the pupils in our secondary schools are actually injured by the course of education which the schools provide," said M. Chailley-Bert, general secretary of the "Colonial Union" ¶; and M. Jules Lemaître, of the Académie Française, writing in 1898, thus formulated his judgment on the subject. "I have thought it well over; I have made observation of the young people of my acquaintance; I have examined myself to find out what I owe to Greek and Latin; and I have arrived at this conviction—that instruction in the dead languages, under the conditions in which it is given, is completely useless to nine-tenths of the young Frenchmen to whom it is imparted."§

It would be nothing less than a catastrophe if any social or educational changes were to impair the great tradition of French literary style. The exquisite lucidity and precision of French thought, expressed in, and shaped by, language no less lucid and precise, is one of those great artistic and intellectual traditions which are of priceless value for the future of civilisation. But, as an English writer has recently observed, "literature of a high order is the

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* The *professeur* (*i.e.* the form-master) has practically nothing to do with the boys outside the class-room. This is an essential difference between the life of a French Lycée and that of an English public school. On the other hand, English boys are much more trusted to make right use of their time out of school than French boys are. The latter are much under the supervision of ushers.

† *Enquête sur l'Enseignement secondaire.* Vol. II. (Paris, 1899), p. 38.

‡ *Notes sur l'Education publique*, p. 38.

‖ *Enquête sur l'Enseignement secondaire.* Rapport général, p. 74. (Paris, 1899.)

¶ *Ibid.* p. 30.

§ *Opinions à répandre* (Paris, 1901), p. 117.

product of a long tradition and of a definite social environment. Millions of readers do not make it, nor myriads of writers, though they read the same books and use the same language, and think the same thoughts. A distinctive literature is the typical expression of some organised society, cultivated by long user, and moulded on accepted standards."* This is exactly true of France. The French classical secondary schools are the home of a great literary tradition. The teaching profession is a chief part of the "organised society" which preserves that tradition. The latter, like any other fine artistic tradition, is handed down from master to scholar, partly by precept, but above all by example. It needs its own atmosphere. It needs leisure. It needs detachment from the worries of administration. It has to be sheltered from interruptions. It seems to stand aloof from many of the urgent needs of practical life. Its "usefulness" is almost wholly indirect. Its real concern is with the things which underlie, and ultimately determine, the course of practical government, not with the problems of administration, or even of pastoral oversight, as they incessantly arise. To the "practical man" its votaries may seem useless, too absorbed in their craft, at times even indolent. But their work, when they do it well, is essential to civilisation, and the maintenance and development of the traditional way of doing that work is the essentially valuable part of the labours of the French classical schools. From this point of view it is doubtless the fact that, as M. Gaston Boissier said before the Parliamentary Commission, "French secondary education, taken as a whole, is equal to, even if it does not surpass, that of any other country in the world."†

By no mere accident, but from historical necessity, the great tradition in the French schools is interwoven with the threads of classical education. Unflinching discipline in the forms of expression is the first essential of the training which imparts it. Hence it is necessarily in the main linguistic. Long and severe practice in the use of the mother tongue is the first and a never-ending requirement. Then comes Latin, partly because it is so fine an instrument of linguistic discipline; partly because it stands so near to French; partly because of the fact that French culture and ideals of Government are still largely Roman in their character; partly because Latin is the key to many of the doors through which the student has to pass. "When you study Latin," said M. Boissier, "you have occasion to learn much besides. The important point is that Latin is not an end in itself, but the road to so many other things. Therefore, you cannot curtail the study of it."‡ And, from the point of view that the great literary tradition must be preserved, will many disagree with him? But though Latin is indispensable,

* Mr. Frederic Harrison, "Impressions of America" (in the *Nineteenth Century and After*, June, 1901).

† *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. p. 68. (Paris, 1899.)

‡ *Ibid.* p. 69.

Greek is even more so. M. Lavisse, whose influence in French educational reform may perhaps be compared to that of Professor Friedrich Paulsen in Germany, is quite willing to admit that a man can write good French without having learnt Latin, and that having studied Latin is no guarantee that he can write good French. "George Sand and Alexandre Dumas fils never studied Latin. Prévost-Paradol got into the École Normale through his French essay; so far as his Latin went, he would have failed. And in the great classical period of French literature, La Rochefoucauld did not know Latin."* But M. Lavisse is emphatic as to the necessity for Greek. "We must revive the study of Greek. . . . Greece, not Rome, is the great teacher of antiquity. Latin literature is, nearly all of it, a literature of imitation. The really fertilising literature, rich in thinkers and in philosophy as well as in artistic power, is the literature of Greece. Hellenism must keep its place in the main intellectual current of the national life."† Equally decisive was the testimony of M. Gréard, the Vice-Rector of the Académie de Paris. "Classical culture is the basis of our literature, of our history, and of all our national traditions. It has been the leaven of the genius of France. It is the school of thought—of the thought that liberates and refines."‡ If it be true that some forms of modern influence and enterprise threaten the future of disinterested study, one duty of the present generation is to hold fast to what is of proved excellence in the classical tradition, and to keep it as one essential part, but as one of many types, of national education.‖ The thoughts which animate the leaders of this revived enthusiasm for Greek ideals of thought and life were eloquently expressed in a recent address by one of the greatest of English scholars.

"This conviction that the things of the mind have a worth, an inherent dignity, which cannot be measured in terms of money, is at the root of many Greek ideas on education. If we would pursue knowledge aright, we must love it disinterestedly. Even learning may be followed in the spirit of a shopkeeper, and the intellectual vulgarity thus fostered is more ignoble than the frank avowal of money-getting as in itself the end. Nothing is so truly degrading as the intrusion of lower and mercenary motives into the sphere of the higher activities. Plato (in the 'Laws,' I., page 644) distinguishes between the education which aims only at outward and worldly success and the true, the liberal, education which fits men for perfect citizenship: 'We are not now speaking of education in the narrower sense, but of that other education in virtue from youth upwards, which makes a man eagerly pursue the ideal perfection of citizenship. This is the only education which upon our view deserves the name; that other sort of training which aims at the acquisition of wealth or bodily strength, or mere cleverness, apart from intelligence and justice, is mean and illiberal, and is not worthy to be called education at all.' . . . I am far from suggesting that these Greek ideals, just as they stand, can be transferred to our own age and country. In many points of detail the Greek way cannot be our way. Some lines of necessary divergence will at once have

* *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. p. 36. (*See* also Jules Lemaitre. *Opinions à répandre*, pp. 156–57.)

† *Ibid.* p. 37. ‡ *Ibid.* p. 9.

‖ *Cf.* M. Alfred Fouillée, *Les Études classiques et la Démocratie.*

occurred to you while I have been speaking. Under the stress of our industrial life the principles here indicated will need adjustment, adaptation, limitation. But the principles themselves are, I would submit, profoundly and permanently true. And, in the task of education, perhaps, as much as in any department of civic life, we need a reminder that there are certain ideals of character, certain paramount ends of conduct, which should underlie and determine all our efforts. We are tempted, perhaps, to fix our eyes on the machinery of education, on the subjects of instruction, on the direct mercantile results of our system, on our own immediate ends as the teachers of this or that branch of knowledge. But sometimes we may do well to test and revise our standards; to ask ourselves what, after all, we are aiming at, what kind of human being we desire to produce. In the letters of a schoolmaster who exercised an inspiring influence on many pupils I find the hope expressed, 'that before my time is out I may rejoice in having turned out of my pupil-room perhaps one brave soldier, or one wise historian, or one generous legislator, or one patient missionary.' Not an unworthy hope, I think, for any of us. And how much it means! Success of this kind implies an ideal in the teacher's mind of what a man and a citizen ought to be, and a worthy conception of what constitutes national well-being. It was part of the beneficent function of Greece to emphasise this idea. The Greeks, as I have tried to show, introduced a humanising and expansive conception into the one-sidedness of earlier civilisations. They had a perception of what Isaiah calls 'the things by which men live.' They knew that 'man does not live by bread alone,' that livelihood is not life, that mere wealth is not well-being. The satisfaction of material wants is not the end of human endeavour. The wealth of nations, like the happiness of individuals, has its source deeper than in the accumulation of riches or the expansion of commerce. The true value of the goods of life is determined by the sense of life as a whole, and by their relation to the higher and distinctively human ends of existence. All this may be called idealism. The breath of poetry here touches the common affairs of life, disengaging the things of the mind from the things of sense. It is partly poetry, partly philosophy, for the Hellenic people felt by a poetic instinct truths which their philosophers arrived at by reflection and analysis. It was these truths that gave meaning and reality to the public and private life of the Greeks, to their institutions, their external surroundings, their recreations, their sense of the worth of human personality and human fellowship, so that the practical world was for them lit up by an imaginative ideal."*

But at this point it is necessary to add that not every boy has the natural aptitude for classical study, and that not every classical school succeeds in awakening a really living interest in the classical humanities and in their significance for modern life. The cause of classical education has been greatly injured by the pedantry of some of its professors. M. Lavisse told the French Parliamentary Commission a story about a candidate in an examination who made a statement that a certain goddess had a temple at Thebes. "What!" said the examiner in a tone of severe reproof, "do you really believe that this goddess had a temple at Thebes?" The candidate's face wore the contrite expression of one who repented having committed a grave offence. "But, after all," added M. Lavisse, "the poor boy had so many other things to learn

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* Prof. S. H. Butcher on *Greek Idealism in the Common Things of Life.* Presidential Address to the Teachers' Guild, June 7th, 1901. (Printed in the *Journal of Education* for July, 1901.)

that he might well be ignorant of that."* And classical education has been given to large numbers of boys whose intellectual interests lay in a quite different direction. In order that classical education may enjoy its true influence it needs to be divested of any kind of educational monopoly. The mere diffusion of Latin and Greek teaching will not in itself be a guarantee for the diffusion of what is best in the Greek and Roman ideals of life. What is wanted is the quickening process, which kindles a living interest in the ideas represented by classical literature. Without that quickening process, which is partly spiritual and partly intellectual, classical education is but a dead weight, not a leaven, in national life. A comparatively few centres of intense interest in classical antiquity (not merely antiquarian interest but humane interest) will do far more to influence national culture than a very large number of so-called classical schools which treat the subject in a mechanical way and without any real insight into its spirit. And this is what is felt by the leaders of educational reform in France. They frankly admit that classical education is for the few, not for the many. But they would hasten to add that among the few there will always be many, like Porson, humbly born. Classical education therefore must not be made a merely aristocratic privilege or a social monopoly. In that case, it would be in danger of becoming dilettanteism. The true reason for maintaining it is because it represents ideas which must permeate, and constantly readjust themselves to, the daily needs of common life. "Let us reduce the number of classical schools," says M. Gréard, "and then deepen the classical studies in those which remain."†

For the great mass of boys, it is argued, another kind of secondary education is wanted. But what shall that education be? This is the real difficulty—to find an alternative. The "modern sides" in the French secondary schools seem to have been rather a failure. They have been too "literary" in their aims and methods. They have had to deal with inferior intellectual material. On the whole, their pupils have been drawn from less cultivated families.‡ But it is too soon to judge of the permanent effects of their work. They have had to struggle against a strong social prejudice in favour of another kind of education. Moreover, though their gravity may easily be exaggerated, there are some difficulties inherent in the subject-matter of "modern" education of a literary type, especially when that education is given in day-schools, under official sanction, and in a social atmosphere highly charged with the influences of civil or theological dissension. It is much harder to keep clear of political and other controversies if the teacher tries to use modern history (especially quite recent history) in the same kind of way as Dr. Arnold used Thucydides and Tacitus. During the

* *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. p. 40.
† *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. p. 9.
‡ *Ibid.* Rapport général, p. 65.

last few months, the French Minister of Public Instruction has found it necessary to curtail the freedom of French secondary teachers in regard to the teaching of French internal history since 1875.* In his evidence before the Parliamentary Commission M. Brunetière remarked that, in his opinion, it would be difficult for a teacher, impartial in intention but with strong convictions of his own, to give anything like a searching exposition of the *Lettres provinciales*, or to speak freely about the works of Voltaire or Diderot, or even about the "profession de foi du Vicaire savoyard." You would put such a teacher in an embarrassing position, M. Brunetière suggested, because he would have to deal with questions on which grave differences of opinion exist among the parents of his pupils.†

It would be mischievous to exaggerate this kind of difficulty. Tact and good feeling on the part of the teacher will, under ordinary conditions, protect him from any charge of partiality or unfairness. Sincerity and the power of "speaking the truth in love" are the qualities which, apart from personal example, give a teacher the strongest moral hold over his pupils. A unity of spirit and of purpose may underlie great differences of formulated opinion; and, where such unity of intention exists, most parents will gladly overlook expressions with which they may not agree, knowing that the sincerity and moral earnestness of the teacher will have a good influence on their children, and will stimulate their thought rather than permanently colour their opinions. But this happy toleration is possible only when there is a general agreement not to press things to extremes. In certain states of public opinion, controversy may quickly blaze up through a teacher's happening to refer to disputed questions in ill-guarded terms.

The present drift of French opinion seems to be in the direction of recognising two very different types of secondary education—one, a highly developed kind of linguistic education, based chiefly, though not exclusively, on the classics; and the other a "modern" education, based chiefly, though not exclusively, on physical science. In short, opinion is polarised, somewhat as it was in Prussia in 1890. The tendency is to have an intense kind of classical education on the one hand, over against an equally strongly marked and very distinctly practical "modern" education on the other. But many of the French advocates of the latter are frankly utilitarian and show little of the German belief in the necessity for a liberal linguistic training as the best basis for later success in the practical labours of commercial or industrial life. Possibly it may be that further development of opinion in France will show the need for greater variety in the types of secondary school than appears to be at present contemplated, and not least for instruction of the type given by the German semi-classical schools, which have proved so well-

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* See Appendix V.

† *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. p. 182.

adapted to the wants of many families in the great centres of industry and commerce. This view is confirmed by some of the memorials sent to the Parliamentary Commission on Secondary Education by the Conseils Généraux and the Chambers of Commerce. Among the former bodies, which perhaps may be compared to our County Councils, there is actually a majority (fifty-four out of eighty) in favour of maintaining classical education. Fourteen out of the fifty-four are satisfied with the *status quo*. The remaining forty plead for the maintenance of classical education, but suggest modification in other parts of the national system. The County Council of Loiret, for example, contends that classical education is necessary for the training of an "intellectual élite." The minority of the Councils includes twenty, who petition for the recognition of classical and modern secondary education as of equal value for the cultivation of the mind and as deserving equal privileges at the hand of the law.* But there is considerable agreement in the view that, for some reason or other, "modern" secondary education has failed to realise the hopes that were formed by its promoters. In France, as elsewhere, there are signs that men of business are far from thinking a classical education the worst preparation for commercial life. Social considerations enter into the matter, no doubt, but the feeling is based on educational grounds as well. For example, the Havre Chamber of Commerce replied that "a classical secondary education is an admirable discipline for the mind. It gives precision, keenness of perception, and intellectual discernment. Far from being detrimental to a business career, it enables a man readily to address himself to complex questions."†

The same opinion was expressed by several men of affairs. For example, M. Paul Leroy-Beaulieu wrote that he had never found that having received a classical education hampered him in understanding financial, economic, or colonial questions. "I think," he added, "that we must not try to Americanise France too much. We must not rob France of those traditions, extending over fourteen centuries, which support us far more than they impede us. We must not forget that we are a people, if not of Latin stock, at all events of the Latin tongue."‡

The Parliamentary Commission express the opinion that France wants, not more savants, but more practical men and engineers. They recommend, therefore, that "modern" secondary education should be reorganised in order to supply that need. They also urge, among many other recommendations, the importance of having much more, and much better, teaching in modern lan-

* Emile Bourgeois, *l'Enseignement secondaire selon le vœu de la France.* (Paris: Chevalier Marescq, 1900), pp. 26-32.

† *Ibid.* p. 52.

‡ *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I., 1899, pp. 145-46.

guages.* And, in order that classical education may gain more of the spirit of the Greek humanities, it is necessary that it be relieved from part of the burden which has been laid on it by the philologists.

Nearly everyone agrees that the hours of intellectual work should be reduced in the French secondary schools. The boys are made to learn too much. "The curricula are overburdened," said M. Bréal.† M. Gréard's testimony (and none is more weighty) is in agreement with this. "Lighten the curricula. . . . There is a danger of our sacrificing freshness of intellectual power to the acquisition of masses of knowledge."‡ M. Boutmy wrote: "Two things are necessary in instruction, namely, that the pupil should get knowledge, and that he should learn how to think. The tendency of the organisers of secondary education has been to pay more attention to the first than to the second."‖

Evidently it is the prevailing opinion that a very good classical education is one of the most valuable things which a literary nation can possess, but that it is possible to have too much of it. A limited number of writers and students, trained in a special atmosphere, by well-tested methods, and by men who are themselves students as well as masters of the literary craft are sufficient to keep up and hand on to their successors a great literary tradition. That this limited number should be forthcoming; that they should be trained up to the highest level of excellence; and that, when trained, they should be able to find employment of a kind congenial to their talent and sufficient to support them in reasonable comfort—these things are essential to the welfare of a great literary tradition such as is one of the great glories of France. But the production of literary persons can be overdone. There is a limit to the number of them that a nation can afford to maintain. And it does harm, not good, to encourage a great deal of second-rate literary ability. The difficulty is, under conditions of democratic government, to know where to stop. Moreover, no one can predict where literary ability will show itself. In some nations the gift of literary expression is much more widely diffused than in others. Some nations, again, like some individuals, turn more naturally than others to literature in their search for guidance, happiness, and consolation in life. There seems, therefore, no sort of rule that would help us to fix beforehand what should be the proportions of literary and practical instruction in any system of national education. Different parts of the same country would probably need quite different proportions. For example, it will probably be felt that the following observations, made by the late Mr. F. W. H. Myers, would not apply with equal force to every part of the United Kingdom. They bear very closely

* M. Lavisse told them that, among his students at the Sorbonne, it was very rare to find one who could read English or German fluently. (Procès-verbaux, Vol. I. p. 44.)

† *Enquête sur l'Enseignement secondaire.* Procès-verbaux, 1899. Vol. I., p. 72.

‡ *Ibid.* p. 10. ‖ *Ibid.* p. 216.

on the question now under consideration in France, and derive great importance from the fact that Mr. Myers was himself so eminent a man of letters. The passage is quoted from Mr. W. E. Currey's General Report on the Public Elementary Schools of the Eastern Division of England (comprising the counties of Bedford, Cambridge, Hertford, Huntingdon, Lincoln, Norfolk, Suffolk, and parts of Essex, Nottingham, and Northampton) for the year 1900.*

"You have asked me whether I think that the literary side of education, which has of late years been exposed to more formidable competition from the scientific side than was the case of old, could be carried substantially farther among teachers and scholars of elementary schools, so as to produce a wider acquaintance with the best ideas of our time and a greater power of appreciating literary excellence.

"I do certainly think that in this direction education could gradually be much advanced without any great expenditure of additional time or money, if, in the first place, those who teach the teachers were chosen for thorough competence in such matters, and if, in the second place, the teachers made it a primary object that the children should be initiated into whatever of best has been and is being taught and written in England by poets, philosophers, and critics.

"I doubt, however, whether this would be the best way of spending the children's time. It is not likely, in the first place, that improved literary training would tend to any literary *output* of real value. While scientific attainments are of recognised use almost everywhere, there is such a glut of second-rate literary production that the newcomer in that field can hardly hope to supply any real need except his own. So far as my own personal experience goes, moreover, I find literary talent among elementary scholars much rarer than mathematical—or I should rather say that whereas, from various districts which I have inspected, I could count perhaps a dozen boys and girls whose mathematical faculty has been worth cultivating to the full, I have never observed any indication of native *literary* gifts. Where such a gift exists it is less difficult for its possessor than it is for the boy with a turn for science to educate himself out of school.

"I shall perhaps be thought old-fashioned for adding that I think a child destined to a simple country life is not certain to be the happier for a more intimate introduction into the thoughts and perplexities of the actual age. I speak in no spirit of obscurantism, but the child cannot learn everything; he can learn, after all, very little; and while science is the most stable and progressive manifestation of the thought of our age, it is also often presented in such a fashion as to afford a training in style and diction as well as in reasoning and observation."

Among the older boys at a good secondary school in France there is wont to be a very keen (some Englishmen might almost be inclined to think a precocious) interest in intellectual things. Something of the same sort often happens in England (for example at Rugby in Dr. Arnold's time), but probably not nearly so often as in France. A French author thus contrasts the English and the French habit of mind. "The intellectually-minded Frenchman," he writes, "very often plays with ideas and with chains of reasoning. They charm him apart from any question of their practical results. He is an artist in ideas. If his arguments turn into acts, it is because

* Eyre and Spottiswoode, 1891. Cd. 566.

they happen to have aroused one of his fundamental passions. He then, by a sort of impulse, realises them at once. But, in the English character, the relation between thought and action is quite different. What sways the Englishman is, not the need of thinking but the need of acting. . . . What interests him in the conclusion of a chain of reasoning is, not its wide general bearings nor even its purely abstract truth, but the future reality to which it is the first step and which itself constitutes the end to be realised."*

But there are periods of intellectual and ethical unrest, during which certain types of character are specially liable to suffer from an education excelling in purely intellectual stimulus rather than in practical interests, physical training, and corporate activities. It would appear that this is now felt by some to be the case in France. I will quote on this point two writers, one an English Roman Catholic, the other a leader of French liberal thought. Mr. C. S. Devas writes :—

"Education is no light matter; and the proper harmony and combination of the four great agencies—domestic education, religious education, scientific education, and industrial education, is one of the first conditions of national welfare.

"A common error of those who follow the principles of the French Revolution is to exaggerate the importance of one of the four great agencies of education, namely, the school, and to reduce to little or nothing the influence of the other three, namely, the home, the church, and the workshop. In reality, if we had to dispense with one of the four, the school is the one that could be spared with the least evil. . . . Writers point out that one of the great and growing social evils, especially in . . . France and Germany, is the over-education, *surmenage scolaire* or *Ueberbildung*, producing a crowd of men and women too fine for their surroundings, and unable or unwilling to earn an honest living. The danger, no doubt, is great; the misery caused by this *fabrication de déclassés* is incalculable. But, mark well, the real ground of the evil is not so much the excess of literary education as the deficiency of moral education. These *déclassés* are not so much over-educated as under-educated, because their homes have been disorderly and their schools godless. And the only thorough remedy is to restore good homes and religious influences. For then any excess in literary training will soon fall away of itself, and an appreciation of art and literature be possible for the great multitude, without unfitting them for the duties of their state of life."†

In the course of an address delivered at the College of Social Science in Paris, by Professor F. Buisson, who was one of the creators of the system of State Primary Education now doing so much for the French people, the following remarks occur:—"Something is wanting in this country, but it is not a principle, or a dogma, or a formula. What with us is far too weak is the man himself. . . . What is needed is not knowledge, but moral will."‡

Unhappily, as regards the question how best to strengthen and

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* M. Alfred Fouillée, *L'Individualisme en Angleterre* in the *Revue des Deux Mondes*, Vol. CXLIX. 1898.

† *Political Economy*: Stonyhurst Philosophical Series (London: Longmans). I quote from a review in the *Tablet* of May 11th, 1901.

‡ *Le Devoir Présent de la Jeunesse.* (Paris: Bureaux de la *Revue Bleue*, 1899.)

enlighten the moral will, a great gulf of difference separates from one another many of the noblest spirits in France. And this separation necessarily shows itself, not least, in educational ideals.

There is a marked tendency in France to admire certain sides (but only certain sides) of English public-school education. One or two boarding-schools have been started, not at all in a spirit of mere imitation, but with the intention of introducing into the life of French schoolboys more of the freedom and physical exercise which are enjoyed in so many of our English schools.* In his evidence before the Parliamentary Commission, M. Lavisse dwelt upon the perils of the French system under which the very close restraints of school are suddenly followed by the almost unchartered freedom of college life. He urged that the French schoolboy would be all the better for more of the freedom which the English schoolboy enjoys.† M. Gréard spoke appreciatively of many features in the life of our English boarding-schools, though he evidently regards something quite different as more in keeping with the practical needs of France.‡ And M. Max Leclerc laid his finger on one of the strongest marks of difference between the best English schools and the corresponding schools in France—namely, the fact that the form-masters in French schools have far less to do with the boys out of school hours than is the case in English secondary boarding-schools.‖ The same point is emphasised by M. Duhamel. The masters, he says, must live much more with the boys, if they wish to influence their characters.¶ But this difference between the French and English systems cuts very deep. We think primarily of education as forming character. They think of it as forming the mind. There is a long history behind each of the two views. A nation cannot easily or quickly step from one to the other. The masters have been chosen chiefly for the one purpose or for the other. A man who is excellent for the one is by no means always so excellent for the other. Partly, again, it is a question of time and energy. Few active English schoolmasters who live among their boys can find time or strength during term-time to carry forward extensive private studies on their own account. A French correspondent, writing to M. Duhamel, makes the significant remark that, "The best schoolmasters are not necessarily those who have the highest intellectual attainments. The latter are apt to write articles instead of thinking about their pupils."§ In English secondary education there is nothing which corresponds to the frequency with which the French secondary schoolmasters are promoted, in view of their learned publications, to university

* Les Écoles des Roches et de l'Estérel and le Collège de Normandie.

† *Enquête sur l'Enseignement secondaire.* Procès-verbaux. Vol. I. pp. 38-93.

‡ *Ibid.* p. 11.

‖ *Ibid.* Vol. II. p. 86. On the other hand, French schoolboys are watched in play-time more closely than English boys—but by another grade of teachers, and this makes all the difference.

¶ *Comment élever nos fils*, pp. 57-58.

§ *Ibid.* p. 254.

chairs. But all who know our English public-schools are well aware that it is not any lack of literary power that has prevented numbers of the masters from attaining similar distinction.

There persists in French education, in spite of the influence of Rousseau, a certain distrust of child-nature. This explains some of the most characteristic features in the discipline of the French schools. Among one school of educational theorists in America there is a tendency to go to the other extreme and to idealise child-nature. Most systems of education tend to range themselves nearer to one side or to the other in this great controversy. One school of educational writers is apt to believe that, in the training of all children, the promptings of a child's natural disposition will be our best guide, and "joy its own security." The other school would agree with the words of Frederick the Great to Sulzer, when the latter was extolling the advances made by education since teachers had gone on the principle that man by nature is good and not evil. "My dear Sulzer," said the King, "you don't know what a cursed race this is that we belong to!" The English practice is characteristically based on a combination of both views. We believe that nearly all children need discipline and oversight, but that they respond to confidence and deteriorate under suspicion. Dr. Arnold constantly spoke, with horror, of the sin which he saw among the boys; but he nevertheless invariably trusted to a boy's honour and truthfulness, until the latter had shown himself undeserving of such confidence.

One fundamental difficulty in French education is a social difficulty. Too large a proportion of parents are anxious to send their boys to secondary schools in order that they may win positions of assured competence and respectability and become "functionaries." "We have too many functionaries," writes M. Duhamel. M. Bourgeois states that in France "vanity has always had a great influence on the choice of education made by parents for their children."* M. Brunetière, in his evidence before the Parliamentary Commission, laid emphasis on the fact that middle-class parents in France are specially anxious to secure for their children the social advantages of higher secondary education.† There is a very laudable side to this anxiety. But the result is that a great many boys receive an education which is not fitted to their abilities or to their prospects in life. It is hoped, however, that, if a very practical kind of secondary education is offered as an alternative to the classical, parents will be more inclined to send their boys to the modern schools, and thus equip them for various kinds of commercial and industrial activity rather than for the literary and official

* *L'Enseignement secondaire selon le vœu de la France*, p. 104.
† *Enquête sur l'Enseignement secondaire.* Procès verbaux. Vol. I. p. 186.

callings, which are already overstocked.* But the older classical education enjoys, and rightly enjoys, high social prestige. Will the practical utility of the proposed schools counteract the tendency to prefer the older course? There is an evident desire to see what can be done to meet the present difficulty by providing a new and attractive type of school, and by relaxing the ties of official routine in educational organisation. M. Paul Cambon, French Ambassador in London, made an admirable speech at a crowded meeting held in Paris last May on behalf of the new Collège de Normandie. He insisted on the necessity for new experiments in French secondary education. The existing system, he argued, is admirable from the point of view of literary, philosophical, and scientific culture. It forms the mind, but does not do enough to form the character. English secondary education, on the other hand, formed the character but did not do enough to form the mind.† The same plea for more freedom in educational development is advanced by M. Ribot on behalf of the Parliamentary Commission, of which he is the chairman. "The general desire to which our inquiry gives expression is for less uniformity, for less bureaucracy, for a little liberty."‡ Still more striking are the words in which M. Émile Bourgeois sums up his suggestions for the reform of French secondary education—words which might well be applied to England. We need, he says, "Plenty of variety and plenty of liberty, but both rooted in a strong sense of unity."¶

ii. In America.‖

During the last few years the signs of American influence in European education have been very great. I do not mean that European Governments have deliberately set themselves to imitate American curricula or American forms of educational administration. On the contrary, the new influences have, in some quarters, been very unwelcome. But they have been none the less potent for change. Just as in commercial and industrial affairs, so in educational, America is being brought into constantly closer relations with Europe. In nearly every department of European life—ecclesiastical, political, and social, not less than economic—American influences are affecting the older ways of looking at things. And the force of the new current is specially noticeable in education.

The influence of America shows itself most conspicuously at present in the growing demand for a better school training in view of the needs of modern industry and commerce. This is not the deepest influence which American example is exerting on European

* For details of the plans for the reform of French secondary education, see Appendix VII. below.

† *Le Temps*, May 27th, 1901.

‡ *La Réforme de l'Enseignement secondaire.* (Paris: A. Colin.)

¶ *L'Enseignement secondaire selon le vœu de la France*, p. 140. See also Appendix V. (below). Limitations on freedom in teaching contemporary French History in French public secondary schools.

‖ Vol. X. of Special Reports on Educational Subjects is devoted to the subject of Education in the United States of America.

ideas of education, but, for the present, it is the most conspicuous. Some years ago Prince Bismarck said that "in estimating future events we must keep an eye on the United States of America, for they may develop into a danger to Europe in economic affairs, possibly also in others, at present wholly unsuspected by most of us. . . . The war of the future is the economic war, the struggle for existence on a grand scale. May my successors always bear this in mind, and take care that, when the struggle comes, we are prepared for it."* There are many signs of the growth of this feeling on the Continent, and in all directions we can see steps being taken to strengthen the technical and professional sides of education in order to produce more skilful workmen for the industrial and commercial struggle. In nearly every part of German-speaking Europe the literary studies in the continuation schools are gradually losing ground to the gain of the technical. The philanthropic idea of the evening school or continuation class, which has done so much in English education and which in Scandinavia has produced the "People's High Schools," seems, for a time at least, to be fading away in Germany and to be giving place to an industrial and commercial aim. In fact the continuation school is being regarded more and more as a drill ground for the lower ranks of the industrial and commercial army. The change in this direction is naturally rapid because, when once the aim is clear and public opinion is found not to resist the change, Governments can quickly reorganise continuation schools in such a way as to make the teaching directly useful to the pupils and indirectly profitable to their employers. Much more difficult and much slower would be the converse process of substituting a more humane and ethical aim for the predominantly industrial and commercial one while at the same time increasing the economic efficiency of the pupil. Such a training as that given in the People's High Schools of Denmark and Norway is much more complex in its character than what is given in the more strictly technical continuation schools. It is more dependent on spiritual forces outside as well as inside the school. It is more closely connected with the personality of the teachers than with their technical proficiency in imparting dexterities of hand or brain. Its best results are more difficult to analyse. It cannot so easily be tested by examinations. It is more liable to be disfigured by gush and sentiment. But nevertheless, at its best, it meets a far deeper, and probably a much more permanent, need than do the purely technical classes, though the latter are also necessary. At present, however, the conflict of moral aims is so acute that it is more difficult than ever to maintain a strong and well-defined ethical purpose in continuation schools. Where the tradition already exists it can be maintained, but it is very hard, under present conditions of thought, to establish a new tradition. Confusion and hesitation seem, for the time, to have

* *Conversations with Prince Bismarck.* Von Poschinger. Ed. S. Whitman (Harper, 1900,) p. 229.

ON THE MEASUREMENT OF MENTAL FATIGUE IN GERMANY.

Part I.

The study of mental fatigue in schools has within recent years attracted considerable attention in both educational and medical circles. It is beginning to be recognised that a more exact knowledge than we now possess of the connection between work and fatigue, and of the predisposing causes and physiological effects of the latter is an indispensable requisite for ensuring that schemes of education shall be carried out under correct hygienic conditions. To what may be termed the external factors of school hygiene—buildings, sanitation, ventilation, lighting and heating—much attention has been directed and vast improvements carried out, based on well-understood hygienic laws; but the question of psycho-hygiene, the physiology of the influence of study on individuals and its bearing on school organisation in its effect in maintaining the health and well-being of children, is one which until the previous decade had scarcely been mooted at all, and which still offers a wide and interesting field of enquiry for investigation.

The latest comparative post-mortem examinations have been successful in fixing the order of development of the brain in children and in showing that those parts of the brain which serve the purpose of systematic thought, commonly known as the reasoning powers, are the last to mature; but at what age these portions of the brain have arrived at a stage of development sufficient to meet the demands of the first school work and in what relation their development stands to the advancing claims of the latter, physiology cannot determine.

The systematic study of mental fatigue, however, as lately undertaken by various investigators, particularly in Germany, and the careful comparison of the results obtained by various methods have served to throw a flood of light on this subject.

Chance speculation has given way to a spirit of earnest enquiry, which has led to investigations conducted in a scientific manner.

It is perhaps a matter for surprise that another problem which has occupied the attention of the scientific world for the last four decades, the principle of the conservation of energy, due to Mayer and Helmholtz, has not stimulated scientific enquiry in the field of mental fatigue.

It is, however, not to be wondered at that physiologists have shown considerable hesitation in approaching this subject, when one reflects what an enormous expenditure of time and trouble is involved in obtaining any clue, however slight, to the intricate and fluctuating operations of the mind.

Mental fatigue is so much more insidious than physical fatigue, its growth and presence are so much more difficult to trace, while the line of demarcation between the healthy fatigue induced in the course of a day's work and that chronic state which is a sign of over-pressure, is often so undefined and variable that advance in our knowledge of this subject must of necessity be slow.

The pain accompanying physical exhaustion is an imperative signal to cease work, but in the case of mental work, flagging energy is generally only recognised in the results, as the quality of the work degenerates and the rate of production diminishes.

The loss of nervous energy may be, and very probably is actually considerably greater in the latter case, but nature's warning signal, pain, is often absent, although to the discerning eye a state of chronic overwork is marked significantly enough by general lassitude, failure of appetite, unhealthy complexion, nervous twitchings, and other signs of a disturbed state of health.

Much careful enquiry has, however, of late years been devoted to this branch of school hygiene, and this is probably due largely to the cry lately become so prevalent in Germany of Ueberbürdung —Over-pressure—in the public schools of the country, and particularly in the Gymnasien or classical schools.

Competitive examinations and the necessity of producing results tempt teachers to make demands on their pupils greater than is always compatible with a healthy physical and mental state while the danger arising from too severe a strain is all the greater because the results are not immediately apparent, and the mischief, when caused, is of a more or less insidious nature frequently, however, causing indelible and permanent injury in after life. The school of to-day has, in fact, the reputation of injuring its pupils mentally and physically by over-pressure, and of stamping them with the marks of overstrain and haste, while ignoring some of the elementary laws of hygiene.

To obtain, however, a just appreciation of the most favourable hygienic conditions, a grasp of the principles underlying the phenomenon of mental fatigue is indispensable. On it should depend largely the organisation of school work, the number, length, and order of the daily lessons, the frequency and duration of the intervals for recreation.

Not that any hope can be entertained of reducing the operations of the mind to the level of an exact science or of grounding complicated psycho-physical phenomena on any numerical basis; the inter-relations indeed between psychical and physical processes are of so close a character that a strict border-line cannot be drawn; yet the progress already made in the study of mental fatigue and the insight gained into the connection between work and fatigue has been sufficient to further very considerably our general knowledge of the hygiene of education and to give promise of greater results in the future.

One of the first attempts to draw some definite conclusions as to the prevalence of over-pressure in schools and the most usual symptoms of mental fatigue was made by Galton.*

As chairman of a meeting for discussing the question of over-pressure in schools, Galton had the opportunity of noting the incompatibility of the various views put forward.

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* *Francis Galton*, "Remarks on Replies by Teachers to Questions respecting Mental Fatigue." Journal of the Anthropological Institute, November, 1888. London.

gained ground nearly everywhere. Consequently the way is, at present, open for the rapid advance of any idea which is clearly defined, evidently practical, and capable of general application. These are the characteristics of the demand for efficient technical classes for young workpeople; and the result is that the movement in favour of establishing such classes is spreading all over Europe and threatening for the time to supersede the more ethical aim in popular education. The movement is naturally welcomed and aided by those who are specially interested in industrial and commercial progress. For the present, it is clearly doing a great work, and superseding much which, because of its inefficiency, deserved to be superseded. But the weakness of the new movement is on its ethical and human side. It fails to meet some of those deeper needs which, in the long run, assert themselves irresistibly, and claim the chief place in the plans of all who have to organise national education. The present tendency towards technical instruction at any price is probably only the first phase of a great educational movement. It is likely to be followed in due time by a strong reaction in favour of a kind of education which takes more fully into account the moral and spiritual needs of men and women, and which, without sacrificing industrial efficiency to sentiment, does not regard the means

> "Of blessed consolations in distress,
> Of moral strength and intellectual power,
> Of joy in widest commonalty spread,"

as being of small account compared with the claims of commercial profit and industrial success.

Europe is filled with apprehension at the rapid economic development of America. Consequently great efforts are being made in self-defence to increase the industrial efficiency of Europe. Thus, for the time, American influence is turning a great part of European education in a technical and utilitarian direction. Many of the more recent changes in European education are inspired by the ideas to which Lord Rosebery gave eloquent expression in a passage in his Rectorial address at Glasgow in November, 1900.

> "Remember the conditions: nations all becoming more dense and numerous, and therefore more hungry and more difficult to satisfy; nations more and more educated and intelligent, more observant of each other; nations more and more alive to their substantial interests, and capable of pursuing them; nations, therefore, increasingly aware of the vital necessity of a healthy, growing commerce, and fiercely determined to obtain it; nations more and more civilised, and therefore less and less anxious for the wager of battle, but still ready even for that, if it be necessary for their new objects. After all, when you have reduced all this to its last expression, it comes to this—the keener and more developed intelligence of humanity, stimulated by competition and enhanced by training. It is with that competition that we have to struggle and to vie."*

American education, however, derives its greatest strength, not from its technical aim, but from the fact that it is animated

* *Questions of Empire* (London: A. L. Humphreys, 1900), p. 32.

by an intense, and indeed religious, belief in the rightness of giving to every boy and girl in the community, as far as possible, an equal chance of making the most of his or her natural powers. This is the real secret of the immense force of American education. Territorial opportunities and other economic advantages may explain much of American prosperity in industry and commerce. But a very different use would have been made of those opportunities had it not been for the great work of the American schools. And the moral power which animates the American schools is the determination "to give every boy and girl their chance." The claims of each individual human being to the best available education are regarded as undeniable, and are in fact the moral basis of American education. But these claims are not satisfied by a merely technical training. Some of the highest kinds of technical training might be compatible with a degree of political subjection which would be intolerable to the American mind. "Each individual child," says Dr. Nicholas Murray Butler, "is entitled to his five-fold inheritance—scientific, literary, æsthetic, institutional, religious." No part of this inheritance can be denied to him without endangering the future welfare of the community. And every part of the inheritance must, in some measure, be given to him through the schools. Hence it may perhaps be hoped that American influence on European education, though for the time predominantly technical in its results, will ultimately reinforce the labours of those who, under much temporary discouragement, believe that the ethical and human elements are by far the most important in any system of education worthy of the name. Thus, American education has a double significance for Europe. It necessitates better technical training for the masses, but at the same time it compels attention to the fact that such technical training must only be a part of the education which every individual is to be given abundant opportunities of enjoying.

The striking things in American education are not its curricula, but its point of view and attitude of mind. Its aim is to develop individuality through the discipline of common schools. It derives its extraordinary influence from the fervent faith which inspires it. Most Englishmen have little idea how intense is the belief of Americans in the necessity for the best possible schools for the whole community. The strenuous zeal which American citizens show on behalf of public education is wholly admirable, and both a sign and a source of national strength. We have nothing like it in this country, where we are still divided at heart between the distrust of popular education and a convinced belief in its necessity. England has been the common home of the two ideals which developed respectively into the very different systems of public education in Virginia and in New England. New England believed in common-schools for everybody, and made sacrifices for them. Virginia believed in giving an appropriate education to gentlemen, but doubted the benefit of much book-learning for the mass of a rural population. This

view (for which, no doubt, there is something to be said,) was brutally stated by Berkeley, the Governor of Virginia, shortly after the Restoration. In answer to the inquiry from the Commissioners of Foreign Plantations, "What course is taken about the instructing the people within your government in the Christian religion?" he said, in 1671, "The same course that is taken in England out of towns; every man according to his ability instructing his children. But I thank God there are no free schools nor printing, and I hope we shall not have them these hundred years; for learning has brought disobedience and heresy and sects into the world, and printing has divulged them and libels against the best Government; God keep us from both."* On the other hand, in 1647 (eleven years after the decision to found what subsequently became Harvard College), the General Court of the Company of Massachusetts Bay passed the resolution which laid the foundation of all later school laws in New England. "It being one chief point of that old deluder, Satan, to keep men from the knowledge of the Scriptures, as in former times, by keeping them in an unknown tongue, so in these later times by persuading them from the use of tongues that so at last the true sense and meaning of the original might be clouded by false glosses of saint-seeming deceivers, that learning might not be buried in the grave of our fathers in church and commonwealth, the Lord assisting our endeavours,—It is therefore ordered that every township in this jurisdiction after the Lord hath increased them to the number of fifty householders, shall then forthwith appoint one within their town to teach all such children as shall resort to him to write and read, whose wages shall be paid either by the parents or masters of such children, or of the inhabitants in general, by way of supply, as the major part of those that order the prudentials of the town shall appoint; providing those that send their children be not oppressed by paying much more than they can have them taught for in other towns; and it is forthwith ordered that where any town shall increase to the number of 100 families or householders, they shall set up a grammar school, the master thereof being able to instruct youth so far as they may be fitted for the university, provided, that if any town neglect the performance hereof above

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* Dr. Elsie Clews, *Educational Legislation and Administration of the Colonial Governments.* 1899. (Columbia University. Contributions to Philosophy, Psychology, and Education, p. 359). This report of Berkeley must, however, not be taken as typical of *average* opinion in Virginia. When Berkeley was writing, there were already three free schools in Virginia. Ten years earlier an Act had been passed for the establishment of a college, involving a free school. Voluntary education, given in "field-schools," grew up among the Virginians at an early date. But Berkeley's sentiments were an outspoken expression of views which lurked in some Virginian minds, and which checked educational development on any systematic plan. As he himself, earlier in life, had helped forward educational work, I suspect that the report quoted in the text was a grim and rather brutal joke, blurted out by an old man who was hardening into a stubborn antagonism to liberal ideas.

one year, that every such town shall pay £5 to the next school till they shall perform this order."*

The contrast was complete in nearly all respects. In New England the Puritans formed small town-communities and the schools were an essential part of their religious establishment. Their grammar schools and college existed to train up ministers and "teaching elders." In Virginia, on the other hand (to quote from a recent writer), "the abundant wild land, the cheap bond-servant labour, and the yet cheaper slave labour which became common in the last quarter of the seventeenth century, tempted the young provincial of the Chesapeake Colonies to land ownership and that culture of the soil by the hands of others that had been for ages the pursuit of the gentry in the mother country. . . . The schools in Virginia were the offspring of the law of demand and supply. . . . There was no town life, and there was small need of dispensing gratuitous Latin to thriving tobacco planters in a new country, whose clergy, such as they were, were imported ready-made. . . . The development of large land-holdings began to produce a class of pretty rich planters in the last half of the seventeenth century, who naturally wished to give their sons better advantages than they could get in the rough old field-schools or the struggling free-schools. Imitating the landed proprietors of England, these men brought up their sons under private tutors."†

Thus New England and Virginia represent respectively some of the tendencies which we in England can still recognise in many of our towns as contrasted with many of our country districts. Times have changed, the problems have altered, and our population has become much more intermixed than it was 300 years ago. But we can still discern the same differences in regard to sympathies with different types of Church order; in regard to the stress laid on the importance of education for the middle and lower classes; and in regard to natural leanings towards commercial pursuits or towards the interests of country life. The one finds its unit in the commune or municipality; the other in the county. The one is mainly commercial, the other mainly agricultural in its sympathies. The one regards the public provision of primary and secondary schools as a necessary part of municipal organisation; the other is comparatively casual about schooling, laying more stress on the education which comes through labour, through social intercourse and through the practised observation of nature. The one lays stress on all children going to the same schools; the other as naturally inclines to private instruction for the children of the landowning classes. The one produces a high level of intelligence among the middle-class; the

* Dr. Elsie Clews, *Educational Legislation and Administration of the Colonial Governments*, (Columbia University. Contributions to Philosophy, Psychology, and Education) (New York: Macmillan, 1899), pp. 60–62.

† Edward Eggleston, *Transit of Civilisation from England to America in the Seventeenth Century* (New York: Appleton, 1901), pp. 222–26.

other tends to sacrifice the middle-class and to develop a remarkable degree of culture and of statesmanlike ability among those few of the highest class who are naturally interested in such matters. In America the two ideals had room to develop for nearly two centuries. The result was that each developed its characteristic excellences and defects, but that, in the end, the Puritan ideal stamped itself far more deeply on the national system of education than did its more picturesque but less strenuous rival. In England, the two ideals have had to grow up together; like two plants in one pot; neither having freedom to expand into a national system; yet each gaining much from the other, though never wholly coalescing with its opposite. Hence the result that we have no clear and single aim in our educational institutions. Educationally, England is a sort of half-way house between Prussia and the United States—neither frankly democratic nor willing to submit to organisation from above. *At its worst*, English education timidly trims between two opposing extremes and, after spasmodic and half-hearted efforts at reform, sinks back into a lethargy of ineffective compromise; or it crouches down between the burdens of two incompatible ideals. But *at its best* (which is rarely reached) it comes nearer to the truth than does any system in the world, because it is sensitive to the excellence both of discipline and of freedom, and because, when it discards mere half-hearted compromise, it boldly attempts to combine the two ideals, to reconcile contraries, and to hold together opposing but complementary tendencies in one system. "One advantage is as little as possible sacrificed to another. We compensate, we reconcile, we balance. We are enabled to unite, in one consistent whole, the various anomalies and contending principles that are found in the minds and affairs of men. From hence arises not an excellence in simplicity, but one far superior, an excellence in composition."*

But, however good from some points of view is the English hatred of extremes, there is no doubt that it has greatly hampered us at all periods when swift and searching reform has been rendered necessary through the rise of new social conditions or through the pressure of foreign rivalry. The Americans and the Prussians have each had an easier task. They have each taken one of two clearly marked alternative policies, and have succeeded in effectively pressing it home. Each has sacrificed a good deal that we have kept. But, on the other hand, each has succeeded in establishing a well-defined educational policy, while we have long faltered between two conflicting aims. The result is that both Prussia and America possess a system of schools which stands out prominently and unmistakably among all other public institutions. A Prussian or an American is as proud of his school system as we are of our Navy. Few Englishmen, on the other hand, could give an accurate account of the kinds of school which provide the

* Burke, *Reflections on the Revolution in France*. 1790.

multifarious types of English education. And it must be admitted that large numbers of Englishmen have but a faint interest in public education and but a faint belief in the value of the work of elementary schools. On the other hand, a well-informed American writer has recently observed that "education is the one thing in which the American people believe without reserve, and to which they are without reserve committed. Indeed I sometimes think that the necessity of education is the only settled article in the shifting and confused social and moral creed of America."*

The spirit which animates American education at the present time is well shown in the "Declaration of Principles" adopted by the National Educational Association of the United States at its meeting held at Charleston, S.C., in July, 1900. This document, from which extracts are given below, was signed by Professor Nicholas Murray Butler of New York, President Harper of Chicago, President Thwing of Western Reserve University, Cleveland, Ohio, and other distinguished leaders of American education.

"The common school is the highest hope of the nation. In developing character, in training intelligence, in diffusing information, its influence is incalculable. In last resort the common school rests not upon statutory support, but upon the convictions and affections of the American people. It seeks not to cast the youth of the country in a common mould, but rather to afford free play for individuality and for local needs and aims, while keeping steadily in view the common purpose of all education. In this respect it conforms to our political ideals and to our political organisation, which bind together self-governing states in a nation, wherein each locality must bear the responsibility for those things which most concern its welfare and its comfort. A safe motto for the school as for the state is: '*In essentials*, UNITY; *in non-essentials*, LIBERTY; *in all things*, CHARITY.'

"A democracy provides for the education of all its children. To regard the common schools as schools for the unfortunate and the less well-to-do, and to treat them as such, is to strike a fatal blow at their efficiency and at democratic institutions; it is to build up class distinctions which have no proper place on American soil. The purpose of the American common school is to attract and to instruct the rich, as well as to provide for and to educate the poor. Within its walls American citizens are made, and no person can safely be excluded from its benefits.

. . . . . .

"We note with satisfaction the rapid extension of provision for adequate secondary and higher education, as well as for technical, industrial, and commercial training. National prosperity and our economic welfare in the years to come will depend in no small measure upon the trained skill of our people, as well as upon their inventiveness, their persistence, and their general information.

"Every safeguard thrown about the profession of teaching, and every provision for its proper compensation, has our cordial approval. Proper standards—both general and professional—for entrance upon the work of instruction, security of tenure, decent salaries, and a systematic pension system, are indispensable if the schools are to attract and to hold the service of the best men and women of the United States; and the nation can afford to place its children in the care of none but the best.

"We welcome the tendency on the part of colleges and scientific schools to co-operate in formulating and administering the requirements for admis-

* Prof. John Dewey, of Chicago, in the *Educational Review* (U.S.A.), June, 1901, p. 29.

sion to their several courses of instruction, and we rejoice that this association has consistently thrown its influence in favour of this policy, and has indicated how, in our judgment, it may be best be entered upon. We see in this movement a most important step towards lightening the burdens which now rest upon so many secondary schools, and are confident that only good results will follow its success.

"The efficiency of a school system is to be judged by the character and the intellectual power of its pupils, and not by their ability to meet a series of technical tests. The place of the formal examination in education is distinctly subordinate to that of teaching, and its use as the sole test of teaching is unjustifiable.

"We renew our pledge to carry on the work of education entrusted to us in a spirit which shall be not only non-sectarian and non-political, but which shall accord with the highest ideals of our national life and character. With the continued and effective support of public opinion and of the Press for the work of the schools, higher and lower alike, we shall enter upon the new century with the high hope born of successful experience and of perfect confidence in American politics and institutions."

At the meeting of the Harvard Teachers' Association, held in March, 1901, a number of interesting papers were read and discussed on the general topic "The People and the Schools," with special reference to the present attitude of public opinion towards the education given in the schools and colleges of the United States.* The first paper, read by Miss Shute, began as follows:—

"In reply to the question, 'Are the schools doing what the people want them to do?' it would be perfectly justifiable to say, 'No, and, what is more, they never have done and never will do what the people want." And it would be equally justifiable to say, 'Yes, for public opinion determines what the schools shall be; the schools are a mere reflection of public opinion.' Neither of these answers, however, satisfies the candid questioner. He is aware of an atmosphere of discontent, a murmur of disapproval—more or less subdued—and if he is a practical person and not a mere observer of men and things, he takes no lasting satisfaction in contemplating the inconsistencies of the people; but desires to know who feels this discontent, what the nature of it is, what causes it, and how it is to be allayed.

. . . . . .

"Expressions of discontent with the schools and what they are doing are confined to no one class of people. From the wealthy taxpayer who helps support the public schools, although his children do not attend them, to the man whose children enjoy the blessings of public education, although he contributes practically nothing to its support; from the honest and fair-minded reformer to the fashionable dabbler in social problems; from the director of large enterprises to the employer of the errand-boy; from the experienced and able superintendent to the merest beginner on the teaching force, comes the voice of complaint and adverse criticism. I would not, however, give the impression that the general attitude toward the schools is hostile; I believe that were the adverse and favourable criticism weighed against each other, gratitude for what the schools achieve would preponderate over the discontent caused by what they fail to do."

Miss Shute's experience is that "the severest criticism comes from two classes of people—those who know the schools least, the superficial meddlers in public matters; and those who know them best, teachers, school officials, and honest students of education. The

* The papers are given in full in the "Educational Review" (New York), May, 1901 (London: J. M. Dent), and I have taken the following extracts from that source.

great general public takes a more lenient attitude. . . . The assertions of those who know the schools best, severe as they often are, are likely to be specific and discriminating, and are often coupled with equally warm praise."

She proceeds to mention three typical complaints. The first is that "the schools are not so thorough as they were." This is often said by people who measure educational progress by the children's skill in reeling off lists of dates, geographical facts, grammar rules, etc. In so far as this is the basis for the criticism the latter may be safely disregarded. Gymnastics of the memory are not education. But, secondly, Miss Shute continues, "I am forced to believe that many people do see a deterioration in the great mass of school children so far as independent power is concerned." Thirdly, she refers to the charge that the schools do not sufficiently prepare the children for life. The two first criticisms, in so far as they have any solid justification, hinge on two important points; (1) that on the average the homes do less than they did a generation or two ago to foster the spirit of obedience, self-denial, and self-control; (2) that there has been, in our educational ideas and practice, a reaction from excessive formalism and severity, and in some cases a tendency to sacrifice mental discipline to variety of intellectual interest. In other words, the chief cause of the weakening of those influences which invigorate character lies outside the school, and is part of that larger movement of thought and change (ethical as well as intellectual) which marks a revolt against the too rigid discipline of former times.

"Many causes," writes Miss Shute, "conspire to produce the impression of deterioration: the fact that the schools draw an increasing number of pupils from homes of a different type, homes of extreme illiteracy, of no traditions worth the name, and of low moral ideals; the conditions of crowded city life as compared with the freer and more responsible life of the country or provincial town; the greater leniency in all home discipline, and the excessive indulgence of children in many homes—all these elements should be taken into account in considering the question of deterioration. . . . Indeed, if it is true that the home does less to encourage this spirit than it did a generation or two ago, the greater becomes the responsibility of the school in this regard; but surely this does not mean culpability on the part of the school. It means that the school has reflected the spirit of the age, not dictated it, and that it must work unremittingly to counteract it. A close student of the times who is familiar with both the homes and the schools is inclined to marvel that the schools have not succumbed more completely to the spirit of indulgence towards children which has marked the home training of people of my own generation and of the generation succeeding my own. I believe that with many a child the school, with its orderly discipline and definite demands, is the saving influence. The mother of a child of six helplessly remarked to a friend of mine, 'I wish that Tommy would go to bed earlier,' but I have seen that same Tommy buckle down to his task in school and learn thereby something of the joy of achievement and of the dignity of obedience to law. We could multiply instances of this sort indefinitely."

Miss Shute goes on to observe:—

"If I am right in thinking that the people, more or less consciously,

want the schools to develop in the pupils a robust type of character, and that the people are not satisfied with what the schools are doing in this respect, I can only say that the schools are no better satisfied with what the people are doing, and that not until parents, teachers, employers, and critics of the schools develop a more consistent notion of what a child's responsibility should be, or a more intelligent notion as to the motives that have caused human beings in all ages to struggle and to succeed, can the schools satisfy either the people or themselves."

But, in a measure, a change of point of view within the school has affected the character of some of the pupils. Miss Shute writes :—

"The main causes of this regrettable condition—so far as it exists—lie, I believe, outside of the schools; nevertheless, it would be uncandid to deny that, in the reaction against formalism and arbitrary control, the school has too often made the mistake of substituting entertainment for that compelling interest that secures the most effective kind of work."

In regard to the third criticism—that the schools do not sufficiently prepare the children for life, Miss Shute writes as follows :—

"The charge—that the schools do not prepare for life—plainly originates in a definite ideal, an ideal in this case which is either broadly educational, or strictly practical, or frankly mercenary, according to the individual conception of what life is. I think that, with one exception, this charge is coupled less often than the other with the assertion that the schools have deteriorated. That one exception is in the matter of certain exact phases of preparation, notably arithmetic and spelling. We are all familiar with the statement that the present generation is totally unable to spell. It is true that there is a great deal of bad spelling, and I am convinced that spelling might be begun earlier and that it should receive more attention, although I would not for one moment have our schools return to the laborious old-fashioned method of teaching children to read by means of spelling. I think that we sometimes forget that inaccurate spelling is not a distinctly modern iniquity; it is a matter of record that the school board of Boston gave a written examination some sixty years ago that led them to comment with severity upon the spelling of the pupils in the public schools. We forget, too, that many of the children who now enter our high schools are from illiterate homes, and have never been in the habit of seeing and using books outside of schools, so that the wonder is that they spell as well as they do.

"In the main, however, this charge makes no comparison between the schools of the past and present. It merely deplores the fact that the schools are not preparing children for life. The philosopher, who regards with profound pity the great majority of mankind losing much that makes life precious because their early training did not open their eyes to the beauty of the world; the business man, who complains that the young people whom he employs are inaccurate and heedless and unintelligent; and the disappointed parent, whose grievance is that his child is not equipped by the school with a definite means of support, are all making the same criticism, for they are all saying that, when the duties and privileges of the actual world present themselves, the graduates of the schools are weighed in the balance and found wanting.

"The men who have helped us in recent years to see more clearly what education is—among them Dr. Harris, Dr. Butler, Mr. Hanus, and Dr. Dewey—have kept constantly before us the true ideal of the school, and consequently the only reliable foundation for the organisation of studies, and the one sound basis of criticism—that is, the correlation of the school with life. I do not mean to imply that this is a distinctly new ideal, but

I do mean to say that it has been stated with more clearness, with more frequency, with a more generous conception of what life is, and with a more conscious recognition of its use as a working basis, in recent times than in the past. . . . Whether we accept a broad view or a narrow we must all admit that the schools leave much to be desired when judged from the standpoint of their correlation with life. The dull inert faces of hosts of men and women whom we jostle on the street, and the shrewd calculating faces of as many more, proclaim this fact as truly to the idealist as the incompetency of the employed, and the helplessness of the unemployed prove it to the more practical observer.

"The causes are not far to find. This varying conception of what life is naturally produces confusion in the schools themselves as to what is worth while and what is not."

After perusing such a paper as the one from which I have made these extracts the non-American reader draws three chief conclusions. (1) The first conclusion is that this power of candid self-criticism, coupled as it is with deep insight into the complex nature of educational problems and with the old hearty and vigorous belief in the efficacy of school training in the building up of a great nation, shows that at no earlier period has there been so powerful and enlightened a movement for educational progress as is stirring the United States at the present time. No student can read the writings of the present leaders of American education without feeling deeply impressed by the spirit which animates educational inquiry and educational reform in America to-day. If the movement were more self-laudatory, it would produce far less effect on the mind of the distant student. The most impressive characteristic of the new movement is that it combines frank and searching self-criticism with deep and unflinching faith in the power of education to mould the future of a great people and in its being able, while inspiring all with a sense of national unity and collective responsibility, to preserve and strengthen what is best in individual character. (2) The second conclusion which impresses itself on the mind of the student is that most of the criticisms which have been touched upon above, proceed from those who have a very high ideal of what a school might do and should be enabled to do. The criticisms imply immense confidence in the possibilities of school work. They do not show reaction or disappointment, but a resolution to press forward and to get more out of the schools than heretofore. "Your committee believe that . . . we must learn first to spend wisely the money raised in our cities for public school purposes, *and that then we must almost double the amount.*" Those are the words of a committee of the American Society for the Promotion of Engineering Education which reported in July, 1900. And yet, says Professor Murray Butler, "the annual expenditure of the United States for common schools is quite equal to the sum total of the expenditures of Great Britain, France, and Germany combined on their powerful navies. . . . It is a sum greater by many millions than the net ordinary expenditure of the United States Government in 1880. The expenditure for common schools has nearly trebled since 1870, and during that period has grown from $1.75 to $2.67 per capita

of population, and from $15.20 to $18.86 for each pupil enrolled."* We in England have, as a rule, but a faint conception of the labour, interest, confidence, and money-aid which Americans lavish, and intend to lavish, on their public schools. (3) The third conclusion to which the reader is led is that the causes of unrest in American education are ethical and social, not merely administrative, pedagogical or economic. American conditions vary greatly from British conditions and still more from the conditions which prevail on the Continent of Europe. But there, as here and elsewhere, the educational problem is at bottom a social and ethical problem. Hence its extraordinary interest, and its extreme difficulty. Mere bustle of organisation is not in itself a sign of progress or of educational efficiency. There are many Americans who, with good reason, regret the gradual disappearance, both in library and in educational administration, of the older form of leisured and tranquil scholarship. But the leaders of American education have not sacrificed their private leisure for any lower reason than the imperative call of public duty. What is going forward in America is a fierce struggle between two contending forces and ideals of life. The victory of the nobler influences depends in great measure on what is made of American education during the next twenty years. Among the best antidotes to materialism and selfishness in a commercial community are idealism and self-sacrifice in the schools. A business-like idealism is the characteristic feature of American education at its best. This combination of two great qualities will protect the schools from the dangers of vulgar utilitarianism on the one hand, and from undue excitement, superficiality, and self-advertisement on the other.

The cross-currents of educational tendency are wont to meet in the secondary school. It is the secondary school rather than the elementary school which is the focus of the difficulties now most pressing in national education. This is true of America as of England, Germany, and France. The Dean of Teachers College in Columbia University, New York, has recently written: "In the field of education there are no problems more difficult to solve than those pertaining to the work of the secondary school. What is the aim of secondary education? What is its function in modern society? What knowledge is of most worth? Such questions as these come to every secondary teacher, and demand an answer." †

But secondary education in America has had a long history, and the present difficulties need to be reviewed in the light of the

* Address on the *Status of Education at the Close of the Century*, delivered at the Chicago meeting of the Department of Superintendence of the National Educational Association of the United States, February, 1900. (Report of Proceedings, p. 195.)

† Dr. Russell. Editor's Preface to Bennett and Bristol's *The Teaching of Latin and Greek in the Secondary School.* (Longmans, 1901), page x.

past. Professor Ellsworth Brown, of the University of California, in the account of secondary education in America which he contributed to Professor Murray Butler's Monographs on Education in the United States,* shows that American secondary education has passed through three stages of development:—first, "the colonial period with its Latin Grammar schools; secondly, the period extending from the revolutionary war to the middle of the nineteenth century, during which the attempt was made to solve the problem of American secondary education by means of the so-called academy; and thirdly, the succeeding period down to the present time chiefly characterised by the upgrowth of public high-schools." In the earlier days "the grammar schools and colleges were intended especially for the directive and professional classes. They had little, if any, connection with such elementary schools as there were. There seems to have been no middle grade of school answering to the needs of a middle class in society. And for girls there was no provision whatever beyond occasional instruction in the merest rudiments of learning. In the colleges the ecclesiastical spirit and purpose were paramount. The students were for the most part preparing for the clerical vocation in some one of the Protestant denominations. . . . The grammar schools exercised a kind of selective function, discovering latent capacity for the higher studies and starting talented youth on the way to college. Those who showed capacity of a lower grade or of a different sort seem to have received but little attention or encouragement in the schools of that day."† The instruction given in these schools followed the old mediæval tradition inherited from Europe. The spirit of the secondary schools varied much in the different colonies, but the scheme of instruction was similar in all.‡ The keynote of the studies was struck in President Chauncy's Commencement Sermon, preached in Massachusetts in 1655:—"In cities and greater towns schools should teach the Latin and Greek tongues, and Hebrew also, which ought to be had in great account with us for the Old Testament's sake."‖ In fact, the essential purpose of secondary and higher education in New England was to train ministers of religion, and incidentally those who would recruit the other learned professions. But, as the revolutionary period drew near, "governmental and ecclesiastical interests drew apart and the position of educational institutions was disturbed."¶ The development of colonial life had given rise to an urgent need for a more practical and modern education. Just as in England and in Germany, so in America, we can see at this period the rise of

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* Prepared for the Paris Exhibition, 1900. Published by J. B. Lyon and Company, Albany, N.Y. Vol. I. pp. 143 *et seq.*

† *Ibid.*

‡ E. Eggleston, *The Transit of Civilisation.* Chapter on the "Tradition of Education."

‖ *Ibid.* p. 265.

¶ E. E. Brown. *Op. cit.* p. 147.

that educational movement which has resulted in the establishment of the Realschulen and of the "modern sides" in secondary schools. Moreover there was a secularising tendency in education, coupled with a demand for a commercial training better suited to the needs of the middle class. Those who felt in sympathy with the new movement were also in sympathy with the Nonconformist minority in England. The latter, under the difficult conditions imposed by the Act of Uniformity and other statutes passed after the Restoration, had endeavoured to keep alight the lamp of learning, and at the same time to supply to the young people of their connexion a more modern training, in those Dissenting "Academies" which rendered an indispensable service to English education throughout the eighteenth century. It is natural therefore that the name "Academy" should have been attached to the new type of secondary school which arose in America. These academies, like their English counterparts, were for the most part established by funds privately subscribed for the purpose and were under the control of boards of trustees.* Their curriculum was far wider than that of the old grammar schools, devoting special attention to history, to English language and literature, and to mathematics as well as to Latin. "Natural philosophy was a favourite subject. . . . Geography was also taught. . . . French was sometimes taught; more rarely German. In the better academies the Latin and Greek languages still constituted the substantial core of the instruction offered."† The influence of these academies is still strong in American education. But, after the close of the revolutionary war, a new movement began for the State organisation of secondary education. In New York State, French "Encyclopædist" influence prevailed, and the "University of the State of New York" is still not a university in the ordinary sense of the word, but the State organisation which was intended to comprehend all the public secondary and higher education in the State. Just as the traveller in the Eastern States of America sees in the architecture of the public buildings a stratum of French influence overlying the earlier stratum of early colonial taste, so also in educational organisation there was after the revolutionary war a natural outburst of French influence which is clearly distinguishable from the earlier tradition. French influence showed itself in the strong movement against privately-governed secondary schools, and in the desire to open up secondary and higher education to the whole people by bringing all schools under the direct and exclusive control of the State government. Democracy and State control went together hand in hand. Curiously enough, America has given fuller practical expression to the educational theories of the French Revolutionary thinkers than has France herself. In France, the Napoleonic organisation

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* E. E. Brown. *Op. cit.* p. 149.

† *Ibid.* p. 154. The curriculum here described has a strong resemblance to that of the Dissenting Academies in England.

of "the University" drew a sharp line between the primary and the secondary schools. But in the United States the stream of educational democracy was irresistible. At one time it threatened to submerge the institutions of an earlier type and to destroy the incorporated rights of the endowed academy. But the United States Supreme Court resisted this tendency,* and the new City (or State) "High Schools" (the name appears to have been adopted in imitation of the High School in Edinburgh)† grew up as a supplement to the academies, not in exclusive substitution for them. The essential point of difference, however, between the high schools and the old academies was that the former were a direct outgrowth of the elementary schools, while the latter had not been so organised at all. For a long time the high schools waxed and the academies waned. Many of the older grammar schools and academies were converted into high schools and brought under direct State or municipal control. The high schools naturally diverted a certain part of the supply which would otherwise have gone to the academies. Those of the latter which survived became all the more efficient through the struggle, and "laid more and more stress on their function of preparing for college life." But it is the high school which represents what we in Europe regard as the characteristically democratic development of American secondary education, especially in the West. An English observer is well aware how easily he may misjuge Admerican conditions, but I venture to hazard the opinion that, with the exception of that of the "grammar grades" in the primary schools, the *intellectual* work of the high schools is at present, as a rule, less satisfactory than that of other parts of American education. Intellectual standards are very far from being the only thing of importance in education, and an English student heartily admires the public spirit and patriotic enthusiasm which have produced the new "High School" system in America. But it appears to him that *intellectual* efficiency has been somewhat sacrificed to the desire to cater for the *average* boy and girl who come from the primary school. It is noteworthy, however, that of late there has been a certain reversion in American opinion to the earlier ideas. "In recent years," writes Professor E. E. Brown, "the increase of wealth, the rise of new social distinctions, dissatisfaction with the colourless religious character of the high schools and many other causes, have caused a new demand for such schools—(*i.e.*, schools of the 'academy' type not under *direct* public management)—to arise. They prepare for college, but do not in general look upon this as their sole function. They are recognised as constituting a highly important part of American provision for public education. While the high schools are for day pupils only, the academies are generally boarding-schools. They afford favourable ground for the deep rooting and vigorous growth of

* *Ibid.* p. 157.
† *Ibid.* p. 156.

culture and scholarship. The more famous of them draw students from long distances, and accordingly exercise a widespread influence upon American educational standards."*

Thus even in America as in England (and, under different conditions, in France) there are signs of a reaction against the idea of Governmental or municipal monopoly in the supply of secondary education. Greater stress is being laid on those parts of education which are ethical rather than intellectual. Parents are beginning to feel that instruction is only a small part of education and that it may be actually injurious unless intermixed with a due proportion of other kinds of training. There is a growing perception of the value of corporate life in education; and of that intense and more concentrated influence which a good boarding-school may exert on the mind and character and sympathies of a pupil. Homes are often distracted and over busy. There is a difficulty in restoring the quiet, regular influence of the old-fashioned kind of home life. Parents are beginning to desire for their children educational conditions in which the mind and character can form themselves under some one set of influences. Moreover there is a growing conviction that a really good education is one of the best things in the world, and that the conditions of direct public management, on a somewhat wholesale scale and on a "popular" basis, are not always favourable to the growth of the best kinds of educational service or always compatible with the supply of the most costly and valuable sorts of moral and mental training. But let us not mistake criticism for reaction. The main stream of American educational progress runs more fully than ever in the channel of public control. Public management of national education is more than ever the root principle of American activity in educational matters. But there is evidently a great movement of thought going on as to what is the best kind of public management, and a clear perception that the problem of direct popular control in education is a far more complex and difficult problem than many of the more zealous advocates of educational democracy used to realise. Perhaps the final result will be an agreement to differ, and a readiness to put up with that composite arrangement which permits all kinds of schools, all kinds of educational influence, and all kinds of educational management to co-exist, provided that one and all are in *some* direct relation to the State, and that one and all are animated by an intense desire to promote individual culture, moral progress, and national unity. Education can never be left wholly to private effort and individual initiative. The community has far too large a stake in the matter ever to ignore its responsibility for the welfare and efficiency of the schools. But nearly everything points to the conclusion that private effort, individual enthusiasm, and the many forms of religious belief are indispensable elements in any system of national education worthy of the name. No kind of

* E. E. Brown. *Op. cit.* pp. 161-62.

administrative monopoly can ever be sensitive enough to the deeper and ever changing needs of national life. Educational problems necessarily involve questions in regard to which neither the State, nor a transient majority of votes in any particular district, nor any one spiritual society, can ever hope to succeed in getting the last word. What is needed is some combination of State sanction, of local patriotism, of religious influence, and of freedom for individual initiative. But nothing is more difficult than to secure such a combination with due regard to the rising standard of efficiency and to the claims of economy. And even when attained, the combination would require incessant readjustment. Moreover its stability would always be endangered by the growth of any desire for civil or ecclesiastical monopoly.

In the course of a discussion on "Education at the close of the Century," at the Chicago meeting of the Department of Superintendence of the National Educational Association held in February, 1900, President Eliot of Harvard University touched in the following words on "three or four of the leading features of educational progress" in America, during the last half of the nineteenth century. The fact that, with Dr. W. T. Harris, and Dr. Nicholas Murray Butler, President Eliot has himself been one of the most powerful influences in educational reform in America, makes his summary of the movement especially valuable and interesting. He speaks from close personal knowledge of the inside of the movement which has done so much to adjust American education to the new needs of the time.

"The first great movement of reform was the introduction of freedom in choice of studies—first in universities, or colleges, and later in schools. Like most other large educational movements, this change proceeded from new conditions entirely outside of the proper realm of education. It proceeded from the wonderful development of new knowledges which took place during the first half of the century, accompanied by the discovery of new principles and methods of scientific investigation. These new knowledges and new methods of inquiry commanded public attention, and created an imperative demand that youth should be instructed in them. The managers of education positively have had no option with regard to the introduction of some sort of elective system. They have been compelled to introduce it. A limited elective system was first introduced into Harvard College in 1826 during the administration of President Josiah Quincy, a layman who came late to an educational post, having previously been a Member of Congress and mayor of Boston. His two successors in the presidency did not agree with him as to the importance of an election of studies; so they tried to extinguish the system in Harvard College. The second of these presidents put on record in his own reports his failure completely to extinguish the system, and gave the true reason for the failure—namely, the incoming of such a number of new sciences and of new philosophical and practical intellectual interests that it was impossible to restrict the programme of studies in the college to the old seven or eight so-called liberal arts. Thus then the great change wrought in the second half of our century in public education was forced on college administrations from without. They had no choice; they must give to the student freedom in choice of

study; and they must so specialise the teaching that the professor should have freedom to develop throughout all his career the teaching of a single topic. . . .

"Many persons have a very inadequate conception of the meaning of election of studies. They think of it chiefly as a questionable liberty for a thoughtless student. It is really the sole means of developing thorough far-reaching university instruction in any subject, or in all subjects, and, therefore, is an indispensable means of promoting and stimulating American scholarship. It is as essential to the production of great teachers and great authors as it is to the training of well-equipped students.

"I pass on to the next fundamental change in American education—a change which is pure, far-reaching gain, and which has been wrought out better in America than in any other country. I refer to the change in school discipline. Again, this is a change brought about, not exclusively by professional teachers, but by social forces working through all the community, but especially developed in schools and colleges. Nowadays we realise that the fundamental object in all education is to develop self-control and the power to give an intense mental attention; and we realise that self-control is not to be cultivated in children under the arbitrary pressure of another's will. As a boy I went to what was considered the best public school in Boston—one famous throughout the country—the Boston Latin School; but I have to testify that the chief disciplinary motive to which I felt myself subjected during my boyhood in that school was fear—fear of the rough tongue of the teacher, fear of the harsh construction put on the childish motive and the childish conduct, and fear of physical pain as an inducement to an unnatural quietness and mental application. That is a true picture of school discipline before the middle of this century all over the world, the school world, for thousands of years; but here in about the middle of this very century came a great change. It came partly through the Church. Fear began to cease to be the prime religious motive. Men began to find out that systematic theology is an exclusively human science. They began to see that it was a marvellously presumptuous thing in one man, though he were a St. Augustine, a Calvin, or a Dr. Hodge, to undertake to state in the forms of human logic God's scheme for the salvation of men, and to describe the nature and the results of God's justice. Men began to emancipate themselves from the terrors of systematic theology. Then, too, we began to learn all over this country that government should not really be what for thousands of years government had been—the work of one arbitrary will, or of a few arbitrary wills; but rather that it should be government by the people for the people. We all began to think that the right conception of government for the citizen might teach us something concerning the government of a child. It occurred to us that, if self-government was the whole object of political freedom, then self-control might be the legitimate primary object of a child's development. Again, home discipline began to change for the better. Family government became gentler; and all these changes in society helped wonderfully to the beneficent change in the school. There has not been a more blessed change in the world than this change in home and school discipline from fear to love, from driving to leading. Wonderful has been the fruit of this change on the temper of our people and the happiness of our homes.

"I pass on to another immense change, brought about quite outside the schools and colleges, which has nevertheless affected profoundly the public provision of systematic instruction. During the last fifty years, on account of industrial changes, the population in our own country, and in most of the civilised countries of the world, has been rushing into cities and large towns. This rush into urban life has had a very ill effect on schools. It has tended to make schools large machines; and, of course, it has deprived the children of the natural out-of-door sports of country life. The grading of classes in a large school had to be inflexible, and the product had to be uniform like that of a flour-mill. That meant that the

quick children were held back and the slow were driven forward, to the great disadvantage of both sorts. It meant marking time. It meant also bad air, bad light, and crowded rooms, with fifty or seventy pupils to a teacher. These are impossible conditions for good teaching. The condensation of population introduced new risks of health; so that what was the normal rural death-rate rose in all large cities and towns to an unnatural height. The children suffered most from these increasing risks. Gradually, but chiefly within the last twenty years, we began to escape from some of these evils. We gave greater attention to good air, proper heat, and proper light; we gave greater flexibility to programmes and options among studies; in short, we attended to the conditions under which the children and the teachers worked, and tried to make them wholesome. But more than that it has been absolutely necessary to do. When a child grows up in the country it gets a natural training in accurate observation. It wants to find a four-leaf clover; it runs to see where the green snake went to; it tracks the woodchuck to its hole and gets it out; it learns the songs of the birds; and knows when the smelts run up the brooks, and when the twilight is just right for finding the partridges. In short, the country child gets naturally a broad training in observation. It also has on the farm an admirable training in manual labour. From an early age it can actually contribute to the care of animals, the successful conduct of the household, and the general welfare of the family. In the city all this natural training is lacking, and substitutes for it have to be artificially provided. This necessity has brought into our schools nature study and manual training, to teach the child to use its eyes and its hands, and to develop its senses and its muscular powers; and these new beneficent agencies in education already well in play are in the near future to go far beyond any stage at present reached. We do not yet see how to replace in urban education the training which the farmer's boy or the sea-coast boy gets from his habitual contest with the adverse forces of nature. The Gott's Island boy, on the coast of Maine, goes out with his father in the early winter morning in a half-open sailboat to visit their lobster traps and bring home the entrapped lobsters. They start with a gentle breeze and a quiet sea, though the temperature is low. The boy knows just how to steer the boat five or six miles to sea, where the traps are sunk on some rocky spot which the lobsters love. The father is busy pulling the traps; the boy watches the weather, and suddenly he says: 'Father, there is a southwester coming. See the clouds driving this way over the hills!' The boy knows just as well as the father what that means. It means a fearful beat to windward to get home, facing a savage wind and a falling temperature, the spray dashing over the vessel, and freezing to the sails and ropes, and loading down the bow with ice. It means a life-and-death struggle for hours—the question being: Shall we get into harbour or not before we sink? Now, that is a magnificent training for a boy, and the sheltered city offers nothing like it. The adverse forces of nature, if not so formidable that men cannot cope with them, are strenuous teachers; but in modern cities we hardly know that the wind blows, or that the flood is coming, or that bitter cold is imperilling all animal life.

"Lastly, a new motive is presented in our day to the teacher, the parent, and the children—the motive of joy through achievement. The great joy in life for us all, after the domestic affections, is doing something and doing it well, getting where we want to get, and bringing others where they would like to be. Give every child, we say, the joy of achievement. Do not set it to do what you know it cannot do well. Set it to do what you think it can do well, and show it how. That is just what goes on in a happy kindergarten, or in a successful university conference or seminary. This is a new and happy aim in modern education—joy and gladness in achievement. I need not say that freedom is necessary to this joy. Schools used to set children doing things they could not do well. That, fellow-teachers, is the unpardonable sin in educational administration.

It is not for the happiness of the children only that this new motive—to increase joy—has come to bless us. It brings new happiness to the teacher also. It is means of happiness for everybody throughout life. As a result of the advent of this new policy we are learning not to use with children a motive that will not work when the children are grown up. To be sure, we must admit that this doctrine condemns almost all the school discipline of the past, and much of the family discipline; but the future will not mind that, if it finds the new doctrine beneficent."*

The National Educational Association appointed in 1892 a "Committee of Ten on Secondary School Studies." The report of this committee, issued in 1893, is full of interest for students of education.† President Eliot was the chairman of the committee, which included many eminent representatives of primary and secondary education. The aim of the committee was essentially practical, *i.e.*, the adjustment of relations between the secondary schools and the colleges or universities, but, in order to attain this practical end, it was necessary for the committee to consider the very difficult question, What should be the balance of studies in a secondary school? Their final recommendations were based on the reports of nine sub-committees or conferences, each of which had investigated the best means of teaching one subject, or group of subjects: viz.:—Latin, Greek, English, other Modern Languages, Mathematics, Physics (with Astronomy and Chemistry), Natural History, Biology (including Botany, Zoology, and Physiology), History (with Civil Government and Political Economy), and Geography (including Physical Geography, Geology, and Meteorology).

The committee reported in strong terms against secondary school courses of a feeble and scrappy nature—"studying a little of many subjects and not much of any one, getting perhaps a little information in a variety of fields but nothing which can be called a thorough training."‡ How, they ask, is this to be secured under present conditions and amid the clamour of the competing claims advanced on behalf of so many subjects? The answer is threefold. (1) Knit the subjects as far as possible into one well articulated course and (for the purposes of that course) discard most of the outlying subjects. Avoid scrappiness and practise correlation. (2) Take steps to get more highly trained teachers who will concentrate themselves on essentials, who will avoid waste and irrelevancies, and who will unify their instruction through imparting to the whole of it a scholarly and cultivated point of view (3) Group all the subjects and encourage four years' training in each of four main lines of study (*i.e.*, language, mathematics, history, and natural science). During the first two years of the course introduce the student to all the principal fields of knowledge in order that his intellectual quality may be tested and his natural

* Report of the National Educational Association, 1900. pp. 196–99.
† Issued by the Bureau of Education, Washington
‡ Report, p. 52.

tastes revealed. Then, in the remaining two years, let him follow up (though with due regard to an all-round discipline) those studies for which he has shown a special aptitude. Regard all subjects as equivalent in educational rank for admission to the college or university, and encourage the latter institutions to accept certain groups of studies as qualifying the pupil to enter on academic work.

But these proposals rest on a fundamental principle which the committee enunciate in the following terms. It will be seen that they discard the idea that the secondary school is merely to be regarded as an antechamber to university or higher studies. Their view is that the secondary school is the crown of primary education, not a passage-room between the primary school and the university. They are far from ignoring the fact that some secondary schools are preparatory institutions to the universities, but they deny the right of the universities to *control* the higher studies of the secondary schools.

"The secondary schools of the United States, taken as a whole, do not exist for the purpose of preparing boys and girls for colleges. Only an insignificant percentage of the graduates of these schools go to colleges or scientific schools. Their main function is to prepare for the duties of life that small proportion of all the children in the country—a proportion small in number, but very important to the welfare of the nation—who show themselves able to profit by an education prolonged to the eighteenth year, and whose parents are able to support them while they remain so long at school. There are, to be sure, a few private or endowed secondary schools in the country, which make it their principal object to prepare students for the colleges and universities; but the number of these schools is relatively small. A secondary school programme intended for national use must therefore be made for those children whose education is not to be pursued beyond the secondary school. The preparation of a few pupils for college or scientific school should in the ordinary secondary school be the incidental, and not the principal object. At the same time, it is obviously desirable that the colleges and scientific schools should be accessible to all boys or girls who have completed creditably the secondary school course. Their parents often do not decide for them, four years before the college age, that they shall go to college, and they themselves may not, perhaps, feel the desire to continue their education until near the end of their school course. In order that any successful graduate of a good secondary school should be free to present himself at the gates of the college or scientific school of his choice, it is necessary that the colleges and scientific schools of the country should accept for admission to appropriate courses of their instruction the attainments of any youth who has passed creditably through a good secondary school course, no matter to what group of subjects he may have mainly devoted himself in the secondary school."*

This is the determinative passage in the report, and marks the democratic character of the committee's recommendations. The fact that so distinguished a committee thought it necessary, after considering all the circumstances of the case, to adopt this view, makes criticism unnecessary. The committee knew American conditions, and in making its recommendations had American conditions in view. But to regard those recommendations as being

* Report, pp. 51-52.

appropriate to English circumstances would be as imprudent as to question their appropriateness to America. To me, at least, it would appear a grave error to regard national secondary education as being principally intended to provide a crown to primary education, though there should be (as part of the system of national education) ample and generous provision for such a crown. Let us not overlook (as we have too much been in the habit of overlooking) the need for providing certain types of secondary education specially and designedly fitted to the needs of those who will not proceed either to the University or to the Technical High School. But let us not regard those needs as determinative, because of their numerical superiority, of the aims and character of the chief part of the national secondary education. Has it not always been, and must it not continue to be, one of the most important duties of the most intellectually developed part of national secondary education deliberately to subordinate its work to the need of preparing its most promising pupils for their later studies at places of higher education? I admit that there is at present need for protest against what has become in some respects an obsolete state of things. Academic studies in some of the English Universities need revision in view of modern needs. But when once this readjustment has been heartily taken in hand, (it is to be hoped from inside the institutions themselves), there will probably spring up a revival of feeling in favour of making and keeping a considerable number of secondary school-curricula directly preparatory to such higher training. Moreover, let us not take a merely quantitative view of school subjects. Different studies vary in value for particular purposes and in their appropriateness to different types of mind. As President Baker said, in a weighty protest attached to the report of the "Committee of Ten" referred to above, "Studies vary in value for the training of the different powers . . . and the choice cannot be regarded as a matter of indifference." In short, are we not once more led to the conclusion that the real need is for variety of curricula, coupled *in every case* with the imperative requirement of intellectual efficiency, of reasonable physical training and of healthy moral tone?

Thus, as regards the comparative value of different subjects in secondary school curricula, exactly the same questions are at issue in American as in German and in French secondary education. But whereas in France and Germany the State has to decide, in America a decision has to be reached through general discussion and agreement. In all three cases, however, public opinion ultimately determines what the decision shall be. All over the world the same difficulties are pressing on those responsible for guiding the studies of the secondary schools. People are far less confident about these subjects than they were twenty or thirty years ago. The complexity and intricacy of the problem are more fully recognised than was the case before. In regard to education, as to so much else, the student will echo the words uttered by Richard Baxter in

1664 :—" Now I find greater darkness upon all things and perceive how very little it is that we know in comparison of that we are ignorant of."

There is a strong desire in America to prolong, as far as may be, the years of general and liberal education, and to put off till as late a date as possible that separation and specialisation of studies which necessarily begin when the pupil is being prepared for a given calling in life. All over the world, the democratic tendency in education is to keep the secondary school as far as possible a sort of general finishing school for pupils from the primary schools, and therefore to put off any early specialisation of types of study in the secondary schools. Professor Brown writes: "Americans are loath to recognise any necessity of a bifurcation of courses, such that the student taking one road finds the way open to indefinite advancement in higher studies, while one taking the other alternative finds a definite limit a little way before him. *We have commonly failed to recognise the need of turning aside at some point, early or late, to master a distinct occupation in life. We have been willing to sacrifice expertness in one's calling to the hope of unlimited progress in higher culture.*"*

This is the gravest question at issue in American secondary education. The new demands of technical efficiency are beginning to threaten the old ideal of an almost indefinitely prolonged general secondary education for all classes.

The rise of the new demands is best illustrated by the opinions of those specially interested in engineering education, *i.e.*, in the education of boys for a new and highly scientific calling, for which the older type of secondary school offered no technical preparation. In the course of a discussion on this subject in New York, in July, 1900, Mr. M. P. Higgins made the following remarks :—

"The common-school system seems to be nearly perfect for taking the boys up to the high-school period, but from this point up to the engineering schools the great masses of our boys, who ought to be trained as superior, thinking mechanics, are drifting aimlessly, and our shops and factories are being unsatisfactorily filled by foreign-born boys, whose mechanical ability is not equal to that of our native boys.

"It is evident, in the great industrial battle for future supremacy, under the inevitable system of intensified production, that our best boys with the best possible training will be needed; but, aside from this necessity, there is no field so promising and attractive as this for an unlimited number of educated, skilled workmen." †

The report of the Committee of the Society for the Promotion of Engineering Education touches on the same difficulty :—

"Your committee are of the opinion that heretofore we all have relied too much upon the common schools and upon native ability. We have also

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* *Monographs on Education in the United States*, Vol. I. p. 182.

† Preliminary Report of a committee of the Society for Promoting Engineering Education; Discussion, p. 36.

conceived the generic American boy or girl as conditioned in a single way, and then have provided educational means and methods to fit this particular condition. But the average or generic boy is no particular boy, and his average condition fits few particular cases. We forget that they are particular boys who are to be trained to do the business of the coming generation, and these particular boys are of all ages, conditions, tastes, and capabilities. Your committee are quite agreed that in America every boy should find his career entirely open at the top. Society here is not to be stratified horizontally, but rather vertically. Our educational ways and means, therefore, must be planned for the purpose of helping every boy or man to make the most of himself, and hence to return to society the most he is capable of. But educational benefits cannot be conferred upon unwilling subjects; neither does the wish always bring the opportunity. Our industrial educational advantages and opportunities, therefore, should be both attractive and available to all classes and to all ages. Any person wishing to improve himself, and to make of himself a more useful citizen, should find an opportunity for gratifying this high ambition. There are now in this country only the beginnings of systematic educational opportunities for young people to learn the theory and practice of particular employments for which they are fitted by nature and in which they long to become engaged. We have an excellent system of public and endowed schools, in which are more or less well taught the elements of knowledge, and in which a very considerable mental capacity is developed. After leaving these schools our boys *know* something, so far as knowledge can be gained from books and oral instruction, but they can *do* little or nothing. This mental, abstract, and *memoriter* education needs to be supplemented by a manual, industrial art, commercial or engineering education, if the boy is to become a doer or a director. He then not only *knows* something, but he can *do* something, and because he can do something he is worth something to society. However much a man *knows*, he is a drone in the hive if he cannot do something for the common good. It must be understood we are not asking for utilitarian education *in place of* a mind-informing and mind-developing education, but to supplement such cultural education as the boy or girl has been able to obtain. Neither do we care to insist upon young people availing themselves of this utilitarian education. We are only concerned that it should be offered, and we have every reason to believe that it will be a long time before the facilities will outrun the pressing demand for any kind of education which will enable a man to rise, in honour and in usefulness, in his chosen calling. We are not concerned to find the pupils, we are only concerned to provide the schools."*

Another force in the direction of differentiating types of secondary schools in view of the need of preparing (in no narrowly-specialised sense, but effectively and economically) for specific callings, is found in the growing feeling against hustle and overcrowding in school curricula. The demand for a good preparation for practical and commercial life, combined with the strong desire to retain as far as possible the common measure of liberal education open to all, has led to the multiplication of subjects in secondary schools.

"The demand for a multiplicity of studies in secondary schools," writes Mr. Jacobs, "is one which has made itself heard very clearly and one to which the schools have yielded, at first with reluctance, finally with enthu-

* *American Industrial Education, What shall it be? Preliminary Report of a Committee of the Society for the Promotion of Engineering Education, made at the New York Meeting, July 2nd and 3rd,* 1900, pp. 2-3.

tiasm. The result is a vast variety of studies. It is almost impossible to name any subject of study so trivial or yet so difficult that it does not find a place in these schools. Studies are thrust into the schools so new that the subject-matter is still to be found only in magazines. Not even the subject-matter is really known, much less the results of instruction for the pupil. There is a mighty rush to keep up with the times. . . .

"For the most part the studies which have gained entrance have had for their open sesame the word practical or useful. With the continued division of labour and the opening of new industries, the denotation of the word practical has been very much enlarged. The result is a programme so crowded that everything lives at the expense of everything else. Latin cannot have its due lest English be defrauded. English must suffer that Latin may at least live. The hurry and rush of our adult life are duplicated in the life of the child."*

The remedy for this overcrowding of subjects is not narrow specialisation, but differentiation of types of secondary school. This, however, would involve a somewhat earlier choice of a profession. But differentiation of types of schools would be a national misfortune if it impaired the free intermingling of boys from all classes of society, which has been one of the great glories of American education. There is no reason, however, why such differentiation should not be accomplished, within moderate and reasonable limits, without any sacrifice of the democratic character of the schools. The best education needs a quiet atmosphere. Hurry and drive are injurious to it. It needs a clear aim and a well-defined course. The teachers require leisure in order constantly to deepen their knowledge of the subjects which they teach, and in order that they may devote a large amount of time to the society of their pupils.

"There are three points," writes Mr. Jacobs, "in which secondary schools in general are failing to do what the people want. First, despite the multiplicity of studies offered, they are not able to fit the courses to the individual in a rational way. This arises from the fact that individuality and educational values are practically unknown quantities. The schools are like a physician well supplied with powders and pills, but ignorant of the laws of health and the effects of his medicines. This physician, at a loss to know how to prescribe, allows the patient to make his own selection. The remedy for the physician is more knowledge of his pills and more knowledge of his patient. The remedy for the schools is the same. Unti the courses of study are arranged on a rational basis and the teacher is able to show such knowledge and success that parents and pupils will have more confidence in his judgment than their own, success must be limited and uncertain. Second, the people are not satisfied with the thoroughness of the work done; particularly in English and upon matters of simple nature, where the common man can be a judge. They are of the opinion that the work is not as thorough as it was in former times. The remedy for this is not to be found in rejecting new methods which are founded upon an appeal to the self-activity of the pupils, and a return to the old methods which relied upon drill and mechanical memory, but rather in the union of the new methods and the old methods. Neither, taken alone, is complete. The one must supplement and complete the other. Third, the people feel that the work exacted of the pupils does not allow proper opportunity for what seems to them necessary to a true education. Outside studies are added: music, instrumental and vocal, art, dancing, recreations. The school finds the home acting, intentionally or unintentionally,

* *Educational Review* (New York), May, 1901, p. 450.

at variance with its plans. The home and school seem to be at cross purposes. The remedy is for the school to take a much more complete cognisance of the entire life of the pupil than it does at present; for the school to become an institution not merely for instruction, but an institution for education."*

In England there are just complaints of the prevailing standard of modern language teaching in many secondary schools, and of the need of improvement in this regard, with special reference to the requirements of commerce. The same complaint was made by Mr. William Barber, of New York, at the International Commercial Congress held at Philadelphia in October, 1899.

"What are we Americans doing in the way of schools for training our young men for commercial life in foreign countries? It is true that sons of rich men can go to college and learn languages as taught there, that is, to read and write, general composition, but I do not know of a school or college where a young man, who wishes to fit himself for a commercial traveller in any foreign country, can learn the commercial language of that country. I regret to say that, as a rule, the sons of our manufacturers care more for base-ball, golf, rowing, and other athletic sports than they do about international law or commercial languages. If an American firm wants a foreign traveller, are they able to find an American who can speak the German, French, or Spanish languages who is competent to do it? They may, but they are very scarce.

"I know of a firm who recently advertised for a traveller for Europe. They stipulated that applicants must be able to speak and write German and French. They received several hundred applications, but not one per cent of them were American-born citizens.

"The question is often asked, Which is to be preferred, a man who speaks the language, knows the customers, the customs of the country, but does not understand American ways of doing business, or the possibilities of American goods; or of the manufacturers to supply goods to meet all requirements; *or* an American who thoroughly understands the goods he is to sell, their possibilities, American ways of doing business, and is imbued with American ideas and enterprise, but who is not able to speak the language, and does not know the customs of the people? Having tried both in connection with the sale of agricultural machinery, I will take the latter every time.

"I know a man who represented a manufacturer of harvesting machines in Europe; he could not speak anything but the English language. A trial of different makes of machines was to be held. All the other representatives were foreign-born and spoke the language, but their machines were of American manufacture, and did not understand their language. My friend, being an American, and his machine being of American manufacture, understood each other so well that the judges employed a talking machine to tell him that he had won the first prize, and the principal dealer employed the same talking machine to secure the agency.

"The American commercial traveller has no equal in any country; his enterprise, hustle, and acuteness are proverbial; he possesses a species of 'contagious enthusiasm,' and has the faculty of inoculating all with whom he comes in contact with this enthusiasm for American goods.

"The American commercial traveller is at a great disadvantage by reason of not having the proper commercial education, but we are fast realising the advantages of travellers having such an education, and I predict that

* Educational Review (New York), May, 1900.

in the very near future such schools will be established and equipped with the best teachers and apparatus the world can supply.

"Give American commercial travellers the advantages of such an education, and our European cousins will have to look closely to their laurels, or the United States will soon become the centre of the world's commerce."*

But the leaders of American education show a united front against any narrowly commercial spirit in the secondary schools. The business atmosphere in America is already so tense that it is the duty of the secondary school rather to provide a counteracting influence than to intensify the interest in commercial matters. The true claims of linguistic study are based, not on anticipated advantage in commercial bargaining, but on the need for training to the highest possible point the gift of expression through which a man enjoys fulness and freedom of intercourse with other men. The claims of French and German are increasingly recognised, but there is also a distinct growth of the opinion that the study of the classical languages is, under present conditions at any rate, indispensable to national culture. While the Norwegian democracy is showing itself antagonistic to Latin, the American democracy is moving in the reverse direction. Dr. Hadley, President of Yale University, has recently made the following observations on this subject:—

"We have use alike for education in English, for education in other modern languages, and for education in the classics. If we had to choose between the three, there is no question that English is the most important. It is the language in which our work is done. The man who is a master in its use possesses a power of control over those about him which can be obtained in no other way. He has an unrivalled command of synonyms which give exactness to his thought; for there is no language which is nearly so rich as English in words to designate the different subjects of modern interest. But this does not mean that it ought to be taught to the exclusion of everything else. Every one recognises that we have so much need to use French and German that no man can be called fully educated who fails to have some knowledge of both these languages. Our national problems may perhaps be solved by English alone; international relations involve the knowledge of many other tongues besides.

"The reason for the study of the classics is at first sight less obvious. The time spent upon them is so great, and their tangible usefulness seems so small, that many people regard the whole matter as a waste of labour. Such reformers would have our schoolboys read Homer or Cicero in translations, and would have the time for grammatical drill spent upon English sentences, instead of Greek or Latin. The chief difficulty with this plan is that we have at present so few teachers who are competent to give good instruction in English, except through the medium of Latin or Greek. Over and over again have I heard men argue for the extension of English teaching in place of the classics when the speakers showed by their diction, their grammar, and their rhetoric that they had not the least conception of what good English expression really was. No man thinks that he can teach Latin without having studied it. His knowledge of Latin may be defective in a great many ways, but he at least knows his deficiencies. On the other hand, there are thousands of men who have never thoroughly studied English, but who would be insulted at the suggestion that they did not know it well enough for all practical purposes, including those of

* Report of the Congress, Eighth Days' Session, October 20th, 1899.

instruction. The marvellous grammatical system of Latin or of Greek coming to us in a foreign language, arrests our attention, and makes teachers and scholars feel that it is something to be seriously studied. When we have a body of instructors who are ready to teach English with equal seriousness, and are able to suppress that vastly greater body who handle it mechanically or carelessly, then—and not till then—shall we be able to talk of superseding the classics in our educational system. Under present conditions they remain vitally important to the welfare of the country as a means to accurate expression and clear thought in the communications between man and man."*

No writer has gone so far as Professor Dewey, of Chicago, in challenging the dominant ideals of American secondary education. His stimulating writings, though they may fail to carry conviction to most of his readers, are significant of the unrest which is disturbing educational opinion in so many countries at the present time.

"If we go back a few centuries," he writes in *The School and Society*,† "we find a practical monopoly of learning. The term *possession* of learning was indeed a happy one. Learning was a class matter. This was a necessary result of social conditions. A high priesthood of learning which guarded the treasury of truth, and which doled it out to the masses under severe restrictions, was the inevitable expression of these conditions. But, as a direct result of the industrial revolution, this has been changed. The result has been an intellectual revolution. Learning has been put into circulation. While there still is, and probably always will be, a particular class having the special business of inquiry in hand, a distinctively learned class is henceforth out of the question. It is an anachronism. Knowledge is no longer an immobile solid; it has been liquefied. It is actively moving in all the currents of society itself. Stimuli of an intellectual sort pour in upon us in all kinds of ways. The merely intellectual life, the life of scholarship and of learning, thus gets a very altered value. Academic and scholastic, instead of being titles of honour, are becoming terms of reproach. But all this means a necessary change in the attitude of the school, one of which we are as yet far from realising the full force. Our school methods, and to a very considerable extent our curriculum, are inherited from the period when learning and command of certain symbols, affording as they did the only access to learning, were all important. . . . Our present education is highly specialised, one-sided, and narrow. It is an education dominated almost entirely by the mediæval conception of learning. It is something which appeals for the most part simply to the intellectual aspect of our natures, our desire to learn, to accumulate information, and to get control of the symbols of learning; not to our impulses and tendencies to make, to do, to create, to produce, whether in the form of utility or of art."

Professor Dewey applies these considerations to every branch of educational work, but it is in the sphere of secondary education that the crisis, caused by the growth of new social needs, has become most acute.

"The secondary school," he writes, "is between the upper and the
* ...er millstone. On one side it is subject to pressure from current public
Londo...

† Chi...e *Education of the American Citizen.* (New York: Scribner's Sons. ... Edward Arnold. 1901), pp. 154–156
...go University Press, 1899, pp. 39 *et seq.*

opinion, on the other to the pressure of university tradition. While the public high school is more sensitive in the former direction, and the private academy the more sensitive in the latter, neither one can be free from both influences."*

"The schools are not doing, and cannot do, what the people want until there is more unity, more definiteness, in the community's consciousness of its own needs; but it is the business of the schools to forward this conception, to help the people to a clearer and more systematic idea of what the underlying needs of modern life are, and of how they are really to be supplied."

But, in the meantime, there is deep-seated unrest, unsettlement in the plan of studies, dislocation of effort. And all this is the result, the inevitable result, of the new conditions produced by the intellectual and industrial revolution.

"The problem of the multiplication of studies, of the consequent congestion of the curriculum, and the conflict of various studies for a recognised place in the curriculum; the fact that one cannot get in without crowding out something else; the effort to arrange a compromise in various courses of study by throwing the entire burden of election upon the student, so that he shall make out his own course of study—this problem is only a reflex of the lack of unity in the social activities themselves, and of the necessity of reaching more harmony, more system, in the direction of the people's needs. The multiplication of studies is not primarily a product of the schools. The last hundred years has created a new world, has revealed a new universe, material and social. The educational problem is thus not a result of anything within our own conscious wish or intention, but of the conditions in the contemporary world."†

The new factor in the situation is the development of science: a development which "affects all professions and occupations; which touches municipal government as well as personal hygiene; and which affects the calling of the clergy as significantly, ... as that of the lawyer. An intellectual and social development of such scope cannot possibly take place and not throw our educational curriculum into a state of distraction and uncertainty.‡ The trouble cannot be avoided by the simple device of confining ourselves within the limits of the older educational tradition. Even were it possible (which of course it is not) to banish sciences from the curriculum, and confine the latter to the humanities, the difficulty would remain. What is going forward is no mere struggle between the humanities and "applied science." It is the advance of the scientific spirit over the whole field of knowledge, including the "humanities." New subjects are demanding a place in the studies of secondary schools —or rather old studies treated in a new spirit. History, political science, and political economy are all pressing for admission into school curricula, and place must be found for them if the schools are going to interpret, and prepare for, life. But these studies are being transformed under the influence of the scientific spirit. This is the intangible but penetrating cause of the unrest.

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* *Educational Review* (New York), May, 1901. *Are the schools doing what the people want them to do?* p. 461.

† *Educational Review* (New York), May, 1901. p. 464.

‡ *Ibid.* p. 465.

"The ferment which is happily going on in the college is because the leaven of all modern life is at work. There seems a certain lack of perspective, a certain lack of sanity and balance in those arguments regarding the college curriculum that assume that the subjects are already in a settled condition, that there are ready-made standards by which to measure their various claims, and that it only remains to pick out just so much of this and so much of that and put an end to all this confusion and conflict which is troubling us. Until the various branches of human learning have attained something like a philosophic organisation, until the various modes of their application to life have been so definitely and completely worked out as to put even the common affairs of life under scientific direction, confusion and conflict are bound to continue. When we have an adequate industrial and political organisation it will be quite time to assume that there is some off-hand and short-cut solution to the problem of educational organisation. In the meantime it is somewhat ridiculous to argue as if there were somewhere a definite set of specific educational recipes which the managers of the collegiate institutions might fall back on, and then serve out just such and such an intellectual diet to those eager for the intellectual feast." *

Nor is it possible to take refuge from the intellectual difficulties by saying that schools must make it their chief concern to develop character. What is meant by "character"?

"Character involves, not only right intentions, but a certain degree of efficiency. And efficiency, as biologists have made us very well aware, is a problem of adaptation, of adjustment to the control of conditions. Are the conditions of modern life so clear and so settled that we know exactly what organs, what moral habits and methods, are necessary in order to get the maximum of efficiency? Do we know how to adjust our teaching to securing this maximum?" †

But, it may be urged, it is at any rate the duty of the higher secondary schools to preserve, in the midst of a bustling and hurrying world, the tradition of culture. Here, again, Professor Dewey challenges the traditional point of view.

"Doubtless, the current implication is that general culture and professional utility are quite independent of each other. The notion of absolute antagonism is, doubtless, wearing away. Like the similar conception of a fixed and obvious gulf between the elect and the unregenerated, it cannot stand the pressure of the interaction of modern life. It is no longer possible to hug complacently the ideal that the academic teacher is perforce devoted to high spiritual ideals, while the doctor, lawyer, and man of business are engaged in the mercenary pursuit of vulgar utilities. But we have hardly reconstructed our theory of the whole matter. Our conception of culture is still tainted with inheritance from the period of the aristocratic seclusion of a leisure class—leisure meaning relief from participation in the work of a workaday world. If I were to venture into what might appear to you the metaphysical field, I think I could also show that the current idea of culture belongs to the pre-biological period—it is a survival of the time when mind was conceived as an independent entity living in an elegant isolation from its environment." ‡

And if, in the last resort, the defender of the older view of secondary education argues that "the college stands for the remnant and is the fortress of the few who are capable of upholding high

* *Educational Review* (New York), May, 1901. p. 4[illegible]

† *Ibid.* p. 469.

‡ *Ibid.* p. 470.

ideals against the utilitarian clamour of the many,'[1] Professor Dewey will have none of such arguments, pushing them aside as mere relics of the dark ages.

"All this I say frankly and emphatically I regard as a survival from a dualistic past—from a society which was dualistic practically and politically, drawing fixed lines between classes, and dualistic intellectually, with its rigid separation between the things of matter and of mind—between the affairs of the world and of the spirit. Social democracy means an abandonment of this dualism. It means a common heritage, a common work, and a common destiny. It is flat hostility to the ethics of modern life to suppose that there are two different ends of life located on different planes; that the few who are educated are to live on a plane of exclusive and isolated culture, while the many toil below on the level of practical endeavour directed at material commodity. The problem of our modern life is precisely to do away with all the barriers that keep up this division. If the university cannot accommodate itself to this movement, so much the worse for it. Nay, more; it is doomed to helpless failure unless it does more than accommodate itself; unless it becomes one of the chief agencies for bridging the gap, and bringing about an effective interaction of all callings in society."*

I have quoted from Professor Dewey's address at considerable length, because his views are a striking expression of the unrest which is at work in American, as in European, education. He has thrown into a philosophic form the instincts of a rather levelling democracy as applied to the problem of educational reform. He frankly avows his hostility to the old tradition, social and educational. The positive side of his argument rests on a very sanguine view of human nature, and on the assumption that we can safely cut ourselves off from the wisdom latent in well-established educational tradition. Like Rousseau, he takes it for granted that men, when liberated from the fetters of tradition, will naturally co-operate with one another in happy and fruitful activities. There rings through all his writings the revolutionary note. But, whether or not we accept his view of the future or his estimate of human nature, we must heartily acknowledge the critical power shown in his analysis of the present educational situation. His criticisms deepen our sense of the intricate difficulty of the problem of educational reform. And do they not point to the conclusion that educational reform, in any true sense of the word, implies not merely administrative change, or amendment in the course of studies, but a new outlook on life, and some more general agreement in regard to social and moral aims? Knowledge and science are more and more necessary, but still more essential is the strengthening of character. No army in the world owes more than the German to historical studies and to patient scientific preparation. Yet it was Moltke himself who said that "for the conduct of an army, character weighs more than knowledge or science."

* *Educational Review* (New York), May, 1901, p. 471.

CHAPTER V.

CONCLUSION.

FINALLY, I propose to submit to the consideration of the reader some of the conclusions to which the previous chapters seem to point, but the questions at issue are so intricate, so many-sided, and of such far-reaching difficulty, that different minds will doubtless draw different practical conclusions from the facts which I have described, and every student of the subject will feel that many of his conclusions are only provisional and tentative.

Every other great nation is making unexampled efforts to improve its system of education. In some important respects we in England have dropped behind in the race. We need much more and much better secondary education for boys who will leave school for business at the age of sixteen. We need better teaching of living languages, including our own mother-tongue. We need much more ample provision for organised research in nearly every branch of knowledge. And we need much more of the highest kinds of professional and technical training. We cannot afford to be indifferent to what is being done abroad. Germany and the United States of America are conspicuous in the struggle for educational supremacy. Both nations are convinced that educational efficiency is a necessary part of the foundation of national greatness and of commercial success. What they and other nations have already done, and are preparing to do, has made searching educational reform in England a pressing national need.*

But the educational problem is not a problem by itself. It is one aspect of the whole social problem. It cannot be isolated from the ethical, economic, and social issues, which underlie it and are interwoven with it. Our view of what should be the aim or aims of national education is bound up indissolubly with our preference for one or other type of social organisation, and with our judgment as to the comparative importance of this or that end of national policy. If we shirk the task of trying clearly to think out our educational aims, our educational organisation cannot help being expensively chaotic. But aims of some kind, implicit or explicit,

* Speaking at the University of Birmingham on July 6th, 1901, Mr. Chamberlain said:—"The fact is that the more I study this question of higher education the more I am persuaded of its enormous importance to this country, the more I am convinced of our own deficiencies, both absolutely and in comparison with those other nations which are our competitors in the struggle, I will not say for existence, but, at all events, for a foremost place in the rank of the nations of the world. And I regard this opening time of the twentieth century as a critical time in the history of British education, and of the higher education which has hitherto been too much neglected, and I am convinced that, unless we overcome the innate conservatism of our people in regard to new discoveries, in regard to the application of the highest science to the commonest industries and manufactures in our land, we shall certainly fall very far behind in the race."

any system of national education must have. Under certain conditions, however, the aims embodied in different parts of the national education may conflict with one another. They may even be traditional, inarticulate, and almost unconscious. For a long time this was true of English education. But within recent years forces beyond our control have brought the different parts of national education into much closer contact with one another. At the present time much of the disturbance in English public opinion on educational matters seems to be due to a confused struggle between the conflicting aims which, in the course of history, have become embodied in what purports to be one national system, but which in reality is a bundle of systems, each hitherto virtually independent, each representing different tendencies of thought, and each congenial to some large section of the nation, though perhaps somewhat repellent to the rest. For example, we have four types of education of boys of primary school age; (1) the practical training given in the industrial schools, (2) the influences of the strictly denominational elementary schools, (3) the board schools, and (4) the traditions of those schools which prepare for the great public schools. These are all representative of quite different currents in educational thought. It is characteristic of English freedom that all four should have kept their place within the compass of national education. We are now finding ourselves compelled, partly by the unifying pressure of modern life, partly by the increasing competition of other nations (a competition which is not merely for supremacy in trade but for the supremacy of certain ideals of government and of social order), to discover some synthesis of our educational aims, some foundation on which educational unity can be based, and some standard by which we can agree to measure true educational efficiency. This task is more difficult than that which has confronted any other nation in the reorganisation of its educational system. England is, as it were, the seed-plot of conflicting ideas about Church and State, about the individual and the community. It has been so for three hundred years, and the two sets of ideas which bore the names of Anglicanism and Puritanism, still persist among us under changed forms of expression and of thought, producing a constant clash of convictions, invigorating our life, and always tending to form a middle party of combination or compromise, which, however, can never exercise dominion over either of the two extremes. It would be easy to set up a national system of education for either extreme alone. The difficulty is to establish one which is both efficient and comprehensive, and yet at the same time strong enough to resist attempts at monopoly proceeding from either of the two extremes. Thus our English education, like so many other aspects of our national life, is distinguished by its attempt to balance conflicting forces in one working system, to reconcile contraries, and to seek unity through a bold diversity.

We can no more transplant educational systems ready-made.

from one country to another than we can transplant historical traditions. All good and true education is an expression of national life and character. It is rooted in the history of the nation and fitted to its needs. It seeks, often by instinct and natural self-adjustment rather than by conscious intention, to strengthen what is weak in national character and to cultivate what is strong. Much that is best in it seems to baffle analysis, and is felt rather than expressed. In national education the two most valuable things are a great ethical tradition and a strong popular interest in the people's schools. Throughout a great part of our English education we possess the first; but, as compared with Germany and America, we are singularly lacking in the second. The ethical tradition of our best schools is admired all over the world; but our intellectual *average* is low. Our education is sectional; theirs is increasingly national. We are at present divided where they are at one. Our strength is spent in tension between various educational aims. Theirs is at present running fast in one channel. With them the masses of the people believe in the schools, care for the schools, and realise what the schools stand for. With us, the masses of the people seem, as yet, almost indifferent about the schools, and not convinced that a good education is one of the things for which it is most worth while to make great personal sacrifices. But the rising standard of education abroad compels us to improve ours also. No nation can live to itself alone. Their improvements force us to act in self-defence. We are bound to scrutinise their results, and, in so far as their results excel ours, to improve our methods, in order to produce *in our own way* something which, while remaining characteristic of English life, will be better of its kind than what is produced anywhere else in the world. Yet we cannot merely copy what other nations have done. A school is not a mechanical contrivance, like a repeating rifle or a submarine boat. It is an institution, not a piece of mechanism. Its best strength lies, not in its material equipment, but in its human sympathies, in its intellectual interests, and in its spiritual influence. But as an institution the school must be equipped with the very best mechanical aids which human invention has devised. Many of these mechanical aids can be copied, or rather adapted, by one nation from another. So can many methods of teaching, some forms of administration, and labour-saving devices of various kinds. But the essential thing in a national system of education is the national spirit, so trained as to enter into a sympathetic understanding of the points of view of other nations, but learning to express itself and its own point of view, in the most effective way possible, through the most appropriate types of education and of schools. We in England have to deal within a small compass with perhaps the most complex conditions that can be found in any national society in the world. We have to deal with one of the most complex of all national characters and with one of the most intricate forms of national and imperial life. Here, as in other countries, the educational problem is an epitome of the national problem. Where the latter is complex, the former is com-

plex in proportion. Hence, as our national life is extraordinarily complex, our educational system will be complex in the same degree. The unity at which we should aim is unity of national feeling, and this seems most likely to be reached, not by the suppression of varieties of educational effort, but by encouraging all those varieties (in so far as their permanence and tenacity indicate their being an expression of varieties in national character) to rise *together* to a higher level of efficiency.

In proportion to the size of the country, is there not needed in England a greater variety of education than is needed elsewhere? We have to remember not only our own national needs, but the obligations which devolve upon us as the centre of the Empire. Ought not the United Kingdom to offer advantages in every grade of education which would attract students from every part of the Empire, and from all other countries, to devote one or two years at any rate to studies here? This imperial aspect of our educational system involves in itself a heavy national responsibility. But, in addition to this, we have to provide for the very diverse needs of our own people. Hence, education cannot but become one of the most important parts of our national equipment. But we in England cannot afford to put up with second-rate education. We need the very best educational system in the world. The very existence of the Empire depends on sea-power and school-power. However many different kinds of education we may find it necessary to maintain, each ought to be the best of its kind. The best schools turn out in the end to be the most profitable schools. It is far better to have a few schools which are really good than an immense number of schools which are indifferent. Wishy-washy education is dear at any price. In school-work, quality matters far more than quantity.

England has always stood for a broad view of education, and for the idea that the training of character and of the physical powers ought not to be sacrificed to purely intellectual discipline. The world is coming round to this opinion, but our tendency has been to neglect unduly the intellectual part of school-work. We are also in danger of paying too much attention to games. Moreover, "character" is a word which bears many different meanings, and the character, which the schools seek to form, ought to bear a definite relation to the tasks of modern life. We need, by means of our schools, to make boys adaptable to new circumstances, but at the same time capable of a wise stubbornness, and of sacrificing self to duty. More than ever is it necessary to develop individual intelligence, while also strengthening the consciousness of corporate responsibility.

The development of individual intelligence is largely a question of methods of teaching, but also of choice of studies. Educational efficiency of the best kind depends on having small classes; highly trained teachers; skilful methods of teaching; not too many subjects; the right order of subjects; the right choice of subjects (it is important that, as far as possible, the subjects chosen should

be such that the pupils will naturally keep up the study and use of them in later life); and an avoidance of hurry, of excessive competition, and of intellectual overstrain. It may be suggested that there is need for a number of carefully planned, carefully watched and carefully recorded educational experiments. Such might be carried out, under the best possible conditions, for a sufficient period of years, in a few selected schools in different parts of the country. Teachers and others might learn a great deal from visiting these experimental schools, and from discussing their methods and results. The keen study of methods by teachers is one of the best signs of educational progress. But the aim should be, not to enable the pupil to win a prize or a scholarship by a certain time, or to pass in some competitive examination (though I am far from meaning to imply that all competition is bad or that all examinations could be dispensed with), but to start him in the right way of learning things for himself, to arouse his interest in important subjects, and to give him a sure foundation of accurate and well digested knowledge. Large numbers of our secondary schools are worried by a superfluity of examinations. It would be far better to have some well defined intellectual aim for each school, and to allow the teachers to work steadily and quietly towards that aim. By regular and systematic inspection of all schools of every kind, the State could take sufficient guarantees for their educational efficiency, without imposing the test of State examinations, which in France and Germany have had the effect of unduly increasing the intellectual burden of the pupils at the cost of their opportunities for other kinds of development. Again, it is undesirable that any one pupil should be set to learn a little of a great number of subjects. Far better results are obtained by the more thorough study of a few subjects. Our motto should be *multum, non multa;* not premature specialisation, however, but an "animated moderation" in our curricula. But as different subjects are needed for different kinds of calling in life, it follows that we need many kinds of different curricula, varying in point of subject, but, as far as possible, equally well taught, and enjoying an equal measure of State recognition and encouragement. One of the chief difficulties however is thus to equate the values of very different curricula and of various forms of intellectual discipline. But such variety is absolutely essential to the well-being of an educational system. Hence it seems expedient to reduce to a minimum the number of posts offered by the State on the results of examinations in subjects so grouped or marked as specially to favour one type of education at the expense of others. At present, in France and Germany, and to some extent in England, there is a tendency to favour the linguistic disciplines in education at the expense of practical training, and thus to give, by means of the State examinations, a specially literary twist to higher education.

The professional training of teachers is a matter on which much of the efficiency of an educational system depends. But the

training ought to be of the best, both in point of general culture and of technical skill. Inadequate training may do almost as much harm as good, by setting up a wrong standard of efficiency. And teachers must be given much leisure if, in addition to doing their regular teaching work, they are to mix with their pupils out of school hours, and also to be required to pursue private studies on their own account. But all these things are necessary elements in the life of such teachers as we require for our schools. We do not want teachers only to meet their pupils in the class-rooms. At the same time, unless they are themselves constantly studying on their own account, their teaching will lose its freshness and its power of awakening keen intellectual interests. An over-driven staff of teachers, harried with work and unable to afford to spend money on books and travel, will have little influence on the intellectual life of their pupils. Nearly everything depends on the personality of the teachers, on their keenness of intellectual interest, on the freshness of their sympathies, on their using the best methods of teaching, on their constantly studying how to improve those methods, on their personal example, and on their friendly intimacy with their pupils. We cannot expect to enjoy the best that our teachers could give us if we underpay and overwork them. In too large a number of our English secondary schools the position of the assistant masters and mistresses urgently needs improvement.

The nation has a right to know far more than is known at present about the work and efficiency of all schools. We suffer from an extraordinary lack of statistical and other information about our secondary schools. No one knows how many pupils are learning Latin, or any other subject, in the great majority of secondary schools in England. No one knows how the subjects are taught, or the qualifications of the teachers, or the numbers of the teachers, or the numbers or the ages of the pupils. Supposing that it was desired to send a circular to every school in England claiming to be secondary in character, it could not be done, as there is not in existence any complete list of the postal-addresses of such schools. It seems desirable that the nation should know a good deal more about what after all is one line of national defence. There are a number of interesting educational experiments going on in England, but without any systematic effort being made to plan those experiments on a scientific basis, or to record their results with scientific accuracy, or to diffuse a knowledge of the experiments which fail. Yet the failures are often as instructive as success.

A number of very difficult questions are raised by the system of holding competitive examinations for scholarships at the public schools at thirteen or thirteen and a half years of age, and at the universities at eighteen to nineteen years of age. It is universally admitted that the system has had some good results, but there is a growing feeling that, under present conditions, it is doing more

harm than good. As at present organised, it cripples the power of the preparatory schools, and, to a less extent, of the public schools, to make much-needed experiments in curricula.

In arguing that much more could be done to bring the ordinary secondary school curricula into closer relation to the needs of later life. I am specially thinking of the average boy. The very clever or very industrious boy will get a good deal out of almost any curriculum, though of course much more out of a well-chosen curriculum than out of a poor one. But is there not need to do a great deal more to get the average boy on the side of work by really interesting him in what he is learning? Why should not more of our schools (including some of the highest rank) make manual skill and constructive work the chief (though, of course, not the only) features of their curriculum? Again, in many schools where the discipline is chiefly linguistic the better teaching of modern languages, of English literature, of geography, and of history, and (where it is not already given) philosophical yet practical instruction in the physical laws of Nature, would be welcome improvements, though the first results of such a change would perhaps be a disagreeable effervescence.

Better teaching at school would undoubtedly have a beneficial effect on our commerce (directly through the better equipment of our commercial travellers individually, but in a far higher degree, by the wider range of knowledge and interest which it would place at the command of our ordinary men of business), yet it is on other than purely commercial grounds that the chief arguments rest for the remodelling of many of our curricula. What is wanted is the union of a disciplined imagination with a balanced judgment. But this is a rare combination which cannot be suddenly produced to order. It cannot be achieved without long-continued labour on the part of all concerned. To produce such a result two things are indispensable: the best of teachers and the best of material. But where else in the world is there so good a chance of getting the best of both? And improvements in curricula would be a natural and necessary condition of educational success. We need a modern education in the humanities. Latin probably will be found to be, up to a certain point, desirable for the present as a disciplinary but subordinate element in the education of many of those who are to occupy high positions in the business world. But French and German are indispensable; and one advantage of learning French and German thoroughly and fluently at school is that a man can easily keep them up afterwards, and extend his knowledge of foreign life, language, and literature in the natural course of his daily professional reading. The best kinds of training for business life are not those which are prematurely specialised, but those which come as the crown of a liberal education. And nothing is more important than to insist on there being a strong ethical element in the education of

those who are destined to guide the commercial and industrial affairs of the country. Commercial credit and industrial peace rest ultimately on a moral basis, and both would be endangered by the effects of an education of which money-making was, tacitly or avowedly, the central aim. Commercial education should seek to inculcate what Cowley called "vertuous covetousness," and not, in Bacon's words, "the incessant and Sabbathless pursuit of a man's fortune"

"The problem for statesmen of this age is how to educate the masses; and literature and science cannot give the solution." So wrote, sixty years ago, one of the greatest teachers of his time. Literature and science are indeed, both of them, necessary elements in the solution; and at least equally necessary are the care and discipline of the bodily powers. But the only force which can fuse these elements into true education is a moral and spiritual influence, moderating and harmonising what would otherwise be extravagant and opposed; expressing itself in deeds rather than in words; teaching by example rather than by precept; and alone able to create the atmosphere in which heart and mind alike can find guidance and rest.

M. E. SADLER.

1901.

APPENDIX I.

Possibility of an Excess of Secondary Education.

The view that there may be in a country an excess of some prevailing type of secondary education has been put forward from time to time by statesmen and writers of high authority. A few of these expressions of opinion are quoted below. It will be seen that some of the arguments, which are employed in the course of educational discussions (particularly in France) at the present time, have been used at many earlier periods, especially during those of rapid social change. It may be pointed out in passing that England has been "two-minded" on the subject of providing extensive facilities for secondary education. Broadly speaking, our educational history is the record of an evenly-balanced struggle between (1) those whose idea of "national education" has been somewhat narrowly limited to a fervent belief in the moral as well as the intellectual efficacy of a system of well-organised day-schools, and (2) those who have clung to a wider, though less easily defined, belief that "national education," in any true sense of the word, consists in the joint and often secret operation of many kinds of influence, permeating the heart as well as the mind of the nation, and proceeding from historic institutions, spiritual traditions, ancient and familiar habits of life, intimacy with Nature, social relationships, personal loyalties, economic activities, daring adventure, and free discussion. Those who incline to the first view have, more frequently than the best of their opponents, been unconsciously one-sided in their conception of what the whole nation ought to be made to think and how it ought to be made to behave. Those, on the contrary, who have inclined to the second view have often been lacking in the pertinacity which comes from rather narrow convictions, and have still more often been inarticulate and unable to express in words, either to themselves or to other people, what they really felt. The opinions quoted below, so far as they have been expressed by Englishmen, have been chosen in order to illustrate an educational point of view which, though singularly persistent and politically influential throughout the last three hundred years of our history, has not yet received at the hands of writers on education the attention which it deserves.

(1) The following passage was written by the famous schoolmaster, Mulcaster, with regard to English education in 1581:—

" . . . There must be a *restraint*, and all may not passe on to learning which throng thitherward, bycause of the inconueniences, which may ensue, by want of preferment for such a multitude, and by defeating other trades of their necessarie trauellours. Our next labour therefore must be, how to handle this *restraint*, that the tide overflow not the common, with to great a spring of bookish people, if ye crie come who will, or ring out all in. Euerie one desireth to have his childe learned: the reason is, for that how hardly soeuer either *fortune* frowne, or *casualtie* chastice, yet *learning* hath some strength to shore vp the person, bycause it is incorporate in the person, till the soule dislodge, neither lyeth it so open for mischaunce to mangle, in any degree, as forren and fortunes *patrimonie* doth. But though euerie parent be thus affected toward his owne child, as nature leades him to wish his owne best, yet for all that euerie parent must beare in memorie that he is more bound to his country, then to his child, as his child must renounce him in countermatch with his countrie. And that countrie which claymeth this prerogatiue of the father aboue the child, and of the child aboue the father, as it maintained the father eare he was

a father, and will maintaine the child, when he is without a father: so generally it prouideth for all, as it doth require a dutie aboue all. And therefore parentes in disposing of their children may vpon good warrant surrender their interest to the generall consideration of their common countrie, and thinke that it is not best to haue their children bookish, notwithstanding their owne desire, be it neuer so earnestly bent: if their countrie say either they shall serue in this trade, without the booke: or if shee say I may not allow any more booke men without my to much trouble. I pray thee good parent haue pacience, and appoint some other course for thy childe, there be many good meanes to liue by, besides the booke, and I wilbe thy childes friend, if thou will fit in some order for me. This verie consideration of the countrie, vttered with so milde a speach, spoken by her that is able to performe it, may moue the reasonable parent, to yealde to her desire as best, as she can tell the headstrong in plaine termes, that he shall yeelde perforce, if he will not by entreatie, for priuate affection though supported by reason of strength whatsoeuer, must either voluntarily bend, or forcibly breake, when the common good yeeldeth to the contrary side.

"Seeing therefore the disposition of wittes according to the proportion of ech state is resigned ouer to the countrie: and she sayth all may not be set to schole, bycause ech trade must be furnished, to performe all duties belonging to all parts. . . . ." *

(2) The following passage is part of Lord Bacon's "*Advice to the King, touching Mr. Sutton's Estate*" (*i.e.*, the Charterhouse), written early in the seventeenth century.

"Concerning the advancement of learning, I do subscribe to the opinion of one of the wisest and greatest men of your kingdom: That for grammar schools there are already too many, and therefore no providence to add where there is excess; for the great number of schools which are in your Highness's realm, doth cause a want, and doth cause likewise an overflow; both of them inconvenient and one of them dangerous. For by means thereof they find want in the country and towns, both of servants for husbandry, and apprentices for trade: and on the other side, there being more scholars bred than the State can prefer or employ; and the active part of that life not bearing a proportion to the preparative, it must needs fall out that many persons will be bred unfit for other vocations and unprofitable for that in which they are brought up; which fills the realm full of indigent, idle, and wanton people, which are but *materia rerum novarum*."†

[Bacon expresses the wish that Mr. Sutton's benefaction should be devoted to the endowment of university studies, instead of secondary schools.]

(3) In 1640 Cardinal Richelieu maintained that France was over-supplied with secondary schools, and that a limit should be placed on their number. He argued that a well-ordered State needs much more technical than literary education; that trade enriches a nation; but that trade is neglected by a nation which is absorbed in literary interests. The following passage from Cardinal Richelieu's *Testament politique* was quoted by M. Hanotaux to the French Parliamentary Commission on Secondary Education.‡

"Le commerce excessif des lettres bannirait absolument celui de la marchandise qui comble les États de richesses, ruinerait l'agriculture, vraie mère nourrice des peuples et déserterait en peu de temps la pépinière des soldats, qui s'élèvent plutôt dans la rudesse de l'ignorance que dans la

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* Mulcaster's *Positions*, 1581. (Quick's edition, 1888, chap. 37, pp. 142-43.)

† Basil Montagu's edition of *The Works of Francis Bacon* (1826), Vol. V. p. 380

‡ *Enquête sur l'Enseignement Secondaire.* Procès-verbaux. Vol. II. 1890, pp. 548-49.

politesse des sciences; enfin il rèmplirait la France de chicaneurs, p propres à ruiner les familles particulières et à troubler le repos public qu'à procurer aucun bien aux États.

"Si les lettres étaient profanées à toutes sortes d'esprits, on verrait plus de gens capables de former des doutes que de les résoudre et beaucoup seroient plus propres à s'opposer aux vérités qu'à les défendre.

"C'est en cette considération que les politiques veulent, en un État bien réglé, *plus de maîtres ès Arts Mécaniques, que de maîtres ès Arts Libéraux pour enseigner les lettres.*

"J'ai souvent vu, pour la même raison, le Cardinal du Perron souhaiter ardemment la suppression d'une partie des collèges de ce royaume; il désirait en faire établir quatre ou cinq célèbres dans Paris, et deux dans chaque ville métropolitaine des provinces.

"Il ajoutait, à toutes les considérations que j'ai rapportées, qu'il était impossible qu'on pût trouver en chaque siècle assez de gens savants pour fournir une grande multitude de collèges; au lieu que, si on se contentait d'en avoir un nombre modéré, on les pourrait remplir de dignes sujets, qui conserveraient le feu du temple en sa pureté et qui transmettraient, par succession non interrompue, les sciences en leur perfection.

"Il me semble en effet, lorsque je considère le grand nombre de gens qui font profession d'enseigner les letters et la multitude des enfants que l'on fait instruire, que je vois un nombre infini de malades qui, n'ayant d'autre but que de boire de l'eau pure et claire pour leur guérison, sont pressés d'une soif si déréglée que, recevant indifféremment toutes celles qui leur sont présentées, la plus grande partie en boit d'impure, et souvent en des vaisseaux empoisonnés, ce qui augmente leur soif et leur mal, au lieu de soulager l'un et l'autre.

"Enfin de ce grand nombre de collèges, indifféremment établis en tous lieux, il arrive deux maux: l'un que je viens de présenter par la médiocre capacité de ceux qu'on oblige à enseigner, ne pouvant trouver assez de sujets éminents pour remplir les chaires; l'autre par le peu de dispositions naturelles qu'ont aux lettres beaucoup de ceux que leurs parents font étudier, à cause de la commodité qu'ils en trouvent, sans que la portée de leur esprit soit examinée, d'où vient que presque tous ceux qui étudient demeurent avec une médiocre teinture des lettres, les uns pour n'être pas capables de plus, les autres pour être mal instruits.

"Quoique ce mal soit de grande conséquence, le remède en est aisé, puisqu'il ne faut autre chose que réduire les collèges des villes, qui ne sont pas métropolitaines, à deux ou trois classes suffisantes pour tirer la jeunesse d'une ignorance grossière, nuisible à ceux mêmes qui destinent leur vie aux armes ou qui la veulent employer au trafic.

"Par ce moyen, auparavant que des enfants soient déterminés à aucune condition, deux ou trois ans feront connaître la portée de leur esprit; ensuite de quoi, les bons qui seront envoyés aux grandes villes réussiront d'autant mieux qu'ils auront le génie plus propre aux lettres et qu'ils seront instruits de meilleure main."

(4) There was great division of opinion on the subject in England during the middle part of the seventeenth century. While some, especially on the Puritan side, strenuously advocated the establishment of more schools (on this point, see Professor Foster Watson's article on *The State and Education during the Commonwealth*, in the "English Historical Review" for January, 1900), others, to whom Puritanical extremes had proved repugnant, maintained that great care was necessary in order to guard against an undue enlargement of the more literary callings. Thus Francis Osborne, writing in 1656, remarked, with reference to "free and populous schools," that he thought "the charity of our forefathers in nothing so much mistaken as in the vast sums they employed in these (more seeming than real) pious uses, which now much redounds to the prejudice of the plough and the more beneficial manufactures of our nation."* This remark applies

* *Advice to a Son*; edited by Judge Parry (London: Nutt, 1896), p. 10.

to schools which were partly elementary, but carried forward many of the pupils to a higher stage in education. Christopher Wase, in his *Considerations concerning Free Schools as settled in England*, published in 1678, admits that "there is an opinion commonly received that the scholars of England are over-proportioned to the preferments for lettered persons," though he temperately argues against any discouragement of higher education, and dwells on England's great need of better provision for the support of learning. The opinions of George Savile, Marquis of Halifax, on the subject of national education are thus described in "Saviliana." The passage appears to refer to Lord Halifax's opinions about the year 1674. "Saviliana" was written, it is thought, by a clergyman who had been chaplain to Lord Halifax. "Another great cause of the decay of vertue, his Lordship attributed to the wrong education of youth. His Lordship would have had schoolmasters to be old and grave, taken from all orders of men, lords for young noblemen, gentlemen for the younger gentry, and so on in lower degrees . . . the place to be looked upon as one of the most honourable; without any salary at all from schoolboys, only with a stipend from the Government when the men would take it: their chief care being that the youths should be punisht for immorality more than for want of proficiency in learning; and that all should be taught to read and to write and to cast accounts, but not any brought up to languages and sciences except such as had parts that would answer; and that shoals of such as had not, should be released from study, and timely sent home, to make artificers and soldiers. It being his Lordship's opinion that nothing distresses the commonwealth so much as half-learned men, and that downright quiet ignorance is much to be preferred before restless conceited knowledge."*

(5) In 1763, La Chalotais, the Procureur-Général of the Parliament of Brittany, published his *Essai de l'éducation nationale ou plan d'études pour la jeunesse*, a work which had a great influence on the educational thought of the time. In this essay, La Chalotais raised the question whether there was not too much literary education in France, and too many secondary schools. "Even the common people want to undertake higher studies," he wrote. "Labourers and artisans send their boys to secondary schools, and when the latter have learnt just enough to make them despise the calling of their parents, they take to the Church or the Law, and often became a harmful element in society." His conclusion was that it was more to the advantage of the State to have a few very efficient secondary schools each with a prolonged course of studies, than to have a much larger number of institutions doing less efficient work. "The nation has been seized by a mania for literary cultivation."†

(6) Frederick the Great said, in an official memorandum to his Minister, von Zedlitz, in 1779:—"Out in the country it is enough for boys to learn to read and write a little. If they know too much, they are off to the towns and want to become clerks and such like."‡

(7) Professor Huxley wrote in 1892 as follows:—

"As to intermediate education, I have never favoured the notion of State intervention in this direction.

"I think there are only two valid grounds for State meddling with education: the one, the danger to the community which arises from dense ignorance; the other, the advantage to the community of giving capable men the chance of utilising their capacity.

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* Foxcroft. *Life of Halifax.* Vol. i., p. 115.

† F. Buisson, *Dictionnaire de Pédagogie.* (Hachette, 1877.) Part I. Vol. II. article *La Chalotais.* *Cf.* also Emile Bourgeois, *L'Enseignement secondaire selon le vœu de la France* (Paris, 1901), pp. 111 *et seq.*

‡ Paulsen, *Geschichte des gelehrten Unterrichts.* Vol. II. p. 68.

"The first furnishes the justification for compulsory elementary education. If a child is taught reading, writing, drawing, and handiwork of some kind; the elements of mathematics, physics, and history, and I should add of political economy and geography, books will furnish him with everything he can possibly need to make him a competent citizen in any rank of life.

"If with such a start, he has not the capacity to get all he needs out of books, let him stop where he is. Blow him up with intermediate education as much as you like, you will only do the fellow a mischief, and lift him into a place for which he has no real qualification. People never will recollect that mere learning and mere cleverness are of next to no value in life, while energy and intellectual grip, the things that are inborn and cannot be taught, are everything."*

All true education has a double purpose, namely (1), the development of the moral personality, physical powers and intellectual gifts of the individual as individual, and (2) the fitting of the pupil skilfully to perform the duties of some special calling in life, and worthily to discharge the tasks likely to fall on him or her as a member of the community. The first is pre-eminently the "liberal" aim in education; the second, the "technical." The two motives are different, but the two processes are necessarily intermixed. The motives are different, but the subject-matter of the education may by accident be the same. For example, Latin may be taught as one of the instruments of a liberal education, or it may be taught for a purely technical aim. All through the period of education the two processes are concurrent, though the relative importance of the two aims depends on the stage of training which the pupil has reached. In early childhood the "technical" aim is very unimportant as compared with the "liberal" aim, though there is a constant tendency to depress the "liberal" aim in the supposed interests of the "technical." As the time draws nearer for the pupil to enter on some practical calling in life (an age which, under existing conditions of society, varies widely in different cases), the demands of the "technical" side of education increase in urgency and relative importance, but they should never be allowed to obliterate the demands of the "liberal" side. The two claims are always, though in varying measure, concurrent. The history of education during the last three centuries shows a steady growth of the conviction (1) that the amount of "liberal" education given to every child and every citizen must be largely increased, and the period during which it is given prolonged; and (2) that, in view of the ever-growing need for increased skill in all of the callings of life, everyone ought to have some measure of technical education, given in school or workshop or, preferably, in both. But, through the increasing complexity of life and the sub-division of different kinds of labour, new kinds of technical education are constantly becoming necessary. Each new kind of technical education, however, must be intermixed with the necessary amount of liberal education. Nor do the older types of education remain in all ways appropriate to the new needs. These older types of secondary and higher education, however, consist of two elements: they are partly "technical" and partly "liberal." In so far as the former becomes obsolete, or is being given to more pupils than are necessary to recruit the gaps in the given calling, there arise new needs for new types of secondary education, in each of which in turn the maintenance of the "liberal" element will be essential, while the "technical" element will be new in order to meet the new needs of the time. It is selfish obscurantism to object to "liberal" education being given to all, without regard to their station or calling. But hardly less mischievous, though much better inten-

* *Life and Letters of T. H. Huxley.* (Macmillan, 1900.) Vol. II. pp. 319–20.

tioned, is the tendency to give exactly the same kind of secondary and higher education to everybody without regard to the actual needs of their calling, *i.e.*, to ignore the necessity for varying the "technical," while safeguarding the "liberal," element in secondary education. The true aim is to retain for *all* the best of the "liberal" elements in education, but also to give to each that kind of technical preparation which, in view of the rising standard of skill, is requisite to efficiency and success in the calling which the pupil intends or hopes to follow after leaving school.

APPENDIX II.

THE ROYAL DECREE ON SECONDARY EDUCATION IN PRUSSIA, NOVEMBER 26, 1900.

"Whereas I have considered the report of the 20th of the present month, it is my pleasure that the reform of the higher schools, initiated by me in 1892, be carried further in the following directions:—

"1. With reference to the question of privileges, the principle must be that the *Gymnasium*, *Realgymnasium*, and *Oberrealschule* are to be considered as of equal value from the point of view of general intellectual culture, which it is only necessary to supplement in so far as for many lines of study and professional pursuits particular branches of knowledge are required which do not enter into the curriculum of each institution, or not to the requisite degree. Consequently, steps are to be taken to extend the privileges of institutions with a non-classical curriculum. This is the best means of raising the repute and increasing the attendance at these institutions, and of effecting the wider spread of modern and practical subjects.

"2. In thus acknowledging the equality of the three types of higher institutions, it will be possible more thoroughly to strengthen the special characteristics of each type. In this connexion I shall offer no objection to an increase in the number of hours devoted to Latin in the *Gymnasium* and *Realgymnasium*. But I am particularly anxious that, in view of the special importance that now attaches to a knowledge of English, this language should receive more attention at the *Gymnasium*. Therefore, side by side with Greek, English is everywhere to be an alternative subject up to IIB., and, moreover, in the three top classes, where local conditions render it desirable, English is to replace French as an obligatory subject, while the latter language is to be retained as an optional one. Also it appears to be advisable that in the curriculum of the *Oberrealschule* (which admits of an extension) geography should receive a larger measure of attention.

"3. Since 1892 undeniable progress has been made in the economy of instruction in many branches. More must still be achieved. Mindful of the old adage, 'Multum, non multa,' the directors will be constrained to pay increased attention to see that equally high attainments are not demanded in all branches, but the most important among them according to the nature of the institution are emphasised and extended. In the teaching of Greek it is specially important to do away with all unnecessary details of grammar, and chiefly to keep in mind that, side by side with the æsthetic point of view, a consideration of the relations between the ancient world and modern culture should receive its proper meed of attention. In modern languages special efforts must be made to secure skill in speaking the foreign idiom, and a ready comprehension of the most popular authors. In history two deficiencies make themselves felt—the neglect of important

portions of ancient history, and the too scant consideration of German history of the nineteenth century, with all its wealth of stirring recollections and great achievements for our native country. In geography, both in the *Gymnasium* and in the *Realgymnasium*, it is to be desired that the instruction be placed in the hands of teachers who have made a special study of this branch. In the teaching of natural science a larger measure of time must be devoted to observation and experimental work, and frequent excursions must enliven the instruction; in teaching chemistry and physics the applied and technical side of the subject must not be neglected. In drawing (where, moreover, the capacity to reproduce the results of observations in rapid sketches is to be encouraged) efforts are to be made at the *Gymnasium* to induce those pupils who intend later on to take up the study of technology, natural science, mathematics, or medicine to take proper advantage of the optional instruction in drawing. Besides the physical exercises, which are to be more extensively introduced, greater attention is to be paid in drawing up the time-table to matters of hygiene, more especially by means of a suitable arrangement of the different lessons, and by considerably increasing the duration of the intervals, which up till now have been too short.

"4. As the *Abschlussprüfung* has not fulfilled the expectations that were formed of it, and, in particular, instead of diminishing the rush of students to the university, has rather augmented it, it is to be abolished as soon as possible.

"5. The establishment of schools following the Altona and Frankfurt curricula has on the whole proved beneficial to the places where they exist. Through the fact that the earlier stages of their curriculum are the same as those of the non-classical schools, they constitute no inconsiderable social gain. It is my wish not only that the experiment should be continued in a manner appropriate to the end in view, but that, where the given conditions prevail, attempts should be made on a more extended basis.

"I cherish the hope that the measures thus to be introduced, for the realisation of which I count upon the ever-constant sense of duty and intelligent devotion of the teachers, will conduce to the advantage of our higher schools, and contribute their share towards lessening the antagonism between the representatives of the classical and modern ideas of education, and succeed in bringing about a conciliatory adjustment of their differences.

(Signed) "WILHELM R

"Given at Kiel, November 26th, 1900,
on board H.M.S. 'Kaiser Wilhelm II.'"

[In the above translation I have availed myself, in the main, of the excellent rendering published in the *Journal of Education*, February, 1901.]

APPENDIX III.

The New Time Tables for Higher (i.e. Secondary) Schools in Prussia, Authorised April 3rd, 1901.

[Published in the *Centralblatt für die gesamte Unterrichts-Verwaltung in Preussen*, May, 1901.]

A.—Time Table for Gymnasien (Classical Schools with Nine-Years' Course), 1901.

—	VI.	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.	As compared with the Time Table of 1892.
Religion	3	2	2	2	2	2	2	2	2	Same.
Mother Tongue and Historical Narration	3 / 1 } 4	2 / 1 } 3	3	2	2	3	3	3	3	Same.
Latin	8	8	8	8	8	7	7	7	7	One weekly lesson more in IV. upwards, except in IIB. Permission to transfer some of the Latin time to Greek in IIA., IB., and IA. is new.
Greek	—	—	—	6	6	6	6	6	6	
French	—	—	4	2	2	3	3	3	3	One lesson per week less in IIIB. and IIIA. One lesson per week more in IIA., IB., and IA.
History	—	—	2	2	2	2	3	3	3	History loses time in VI. and V.
Geography	2	2	2	1	1	1	—	—	—	Geography gains time in VI. and V.
Mathematics	4	4	4	3	3	4	4	4	4	Same, except that the permission to alter the distribution between Mathematics and Natural Science in IIB. upwards is new.
Natural Science	2	2	2	2	2	2	2	2	2	
Writing	2	2	—	—	—	—	—	—	—	Same.
Drawing	—	2	2	2	2	—	—	—	—	Same.
Total	25	25	29	30	30	30	30	30	30	One lesson more per week in IV. Two lessons more per week in IIA., IB., and IA.
Physical Training	3	3	3	3	3	3	3	3	3	
Singing	2	2	—	—	—	—	—	—	—	

The classes rise from VI. to IA.

The Arabic figures indicate the number of weekly lessons in school in each subject.

Each lesson lasts fifty minutes. The above table does not include home-work.

The brackets indicate that the number of lessons may, if desired, be redistributed from time to time between the subjects enclosed in the bracket.

Optional.—Drawing (two lessons weekly from IIB. upwards). English (two lessons weekly) or Hebrew (two lessons weekly) from IIB. upwards. English (three lessons weekly) may be substituted for French (three hours weekly) in the three highest classes, French in that case taking the place of English as an optional subject (two lessons).

Scholars whose handwriting is bad have writing lessons in IV., IIIB., and IIIA.

B.—TIME TABLE FOR REALGYMNASIEN (SEMI-CLASSICAL SCHOOLS WITH NINE-YEARS' COURSE), 1901.

—	VI.	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.	As compared with the Time Table of 1892.
Religion	3	2	2	2	2	2	2	2	2	Same.
Mother Tongue and Historical Narration	3 } 4 1	2 } 3 1	3	3	3	3	3	3	3	Same.
Latin	8	8	7	5	5	4	4	4	4	One lesson per week more in IIIB. upwards.
French	—	—	5	4	4	4	4	4	4	One lesson per week less in IIIB., and IIIA.
English	—	—	—	3	3	3	3	3	3	Same.
History	—	—	2	2	2	2	3	3	3	Geography gains what History loses in VI. and V.
Geography	2	2	2	2	2	1	—	—	—	
Mathematics	4	4	4	5	5	5	5	5	5	Same.
Natural Science	2	2	2	2	2	4	5	5	5	Loses one lesson a week in IIB.
Writing	2	2	—	—	—	—	—	—	—	Same.
Drawing	—	2	2	2	2	2	2	2	2	Same.
Total	25	25	29	30	30	30	31	31	31	One lesson per week more in IIA., IB., and IA.
Physical Training	3	3	3	3	3	3	3	3	3	
Singing	2	2	—	—	—	—	—	—	—	

The classes rise from VI. to IA.

The Arabic figures indicate the number of weekly lessons in school in each subject. Each lesson lasts fifty minutes. The above table does not include home-work.

The brackets indicate that the number of lessons may, if desired, be redistributed from time to time between the subjects enclosed in the bracket.

OPTIONAL.—Linear Drawing from IIIA. upwards, two lessons weekly.

Scholars whose handwriting is bad have writing lessons in IV., IIIB., and IIIA.

C.—TIME TABLE FOR OBERREALSCHULEN (NON-CLASSICAL SCHOOLS WITH NINE-YEARS' COURSE), 1901.

—	VI.	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.	As compared with the Time Table of 1892.
Religion	3	2	2	2	2	2	2	2	2	Same.
Mother Tongue and Historical Narration	4 } 5 1	3 } 4 1	4	3	3	3	4	4	4	Same.
French	6	6	6	6	6	5 }	4 }	4 }	4 }	The freedom to redistribute hours between French and English in IIB. upwards is new.
English	—	—	—	5	4	4 }	4 }	4 }	4 }	
History	—	—	3	2	2	2	3	3	3	History loses what Geography gains in VI. or V. History gains a lesson per week in IV. Geography loses a lesson per week in IIB History and Geography gain between them one lesson per week in IIA. upwards.
Geography	2	2	2	2	2	1	1	1	1	
Mathematics	5	5	6	6	5	5	5	5	5	Same.
Natural Science	2	2	2	2	4	6	6	6	6	Same.
Writing	2	2	2	—	—	—	—	—	—	Same.
Freehand Drawing	—	2	2	2	2	2	2	2	2	Same.
Total	25	25	29	30	30	30	31	31	31	One lesson per week more in IV. and in IIA. upwards.
Physical Training	3	3	3	3	3	3	3	3	3	
Singing	2	2	—	—	—	—	—	—	—	

The classes rise from VI. to IA.

The Arabic figures indicate the number of weekly lessons in school in each subject. Each lesson lasts fifty minutes. The above table does not include home-work.

The brackets indicate that the number of lessons may, if desired, be redistributed from time to time between the subjects enclosed in the bracket.

OPTIONAL.—Linear Drawing from IIIA. upwards (two lessons per week).

Scholars whose handwriting is bad have writing lessons in IV.

D.—TIME-TABLE FOR REALSCHULEN (NON-CLASSICAL SCHOOLS WITH SIX-YEARS' COURSE), 1901.

The Time-table for these schools is the same as that for VI. to IIB., inclusive, of the foregoing Time-table for Oberrealschulen.

But, according to local needs, the State Inspecting Boards may allow, in classes VI. to II. inclusive, more instruction in the Mother Tongue at the expense of Mathematics or of French.

The total number of weekly lessons, however, must not be increased in the case of any class.

DI. — ALTERNATIVE TIME TABLE FOR REALSCHULEN (NON-CLASSICAL SCHOOLS WITH SIX-YEARS' COURSE), 1901.

—	VI.	V.	IV.	III.	II	I.	As compared with the Time Table of 1892.
Religion	3	2	2	2	2	2	Same.
Mother Tongue and Historical Narration	5 / 1 } 6	4 / 1 } 5	5	5	4	4	One lesson per week more in I.
French	6	6	6	5	4	4	Same.
English	—	—	—	5	4	4	Same.
History	—	—	3	2	2	2	History loses what Geography gains in VI. and V. Geography gains one lesson per week in II. History gains one lesson per week in IV.
Geography	2	2	2	2	2	2	
Mathematics	4	4	5	5	5	5	Same.
Natural Science	2	2	2	2	5	5	Same.
Writing	2	2	2	—	—	—	Same.
Freehand Drawing	—	2	2	2	2	2	Same.
Total	25	25	29	30	30	30	
Physical Training	3	3	3	3	3	3	
Singing	2	2	—	—	—	—	

The classes rise upwards from VI. to I. The classes named above, III., II., and I., correspond respectively to IIIB., IIIA., and IIA. of the nine-year schools.

The Arabic figures indicate the number of weekly lessons in school in each subject. Each lesson lasts fifty minutes. The above table does not include home-work.

The brackets indicate that the number of lessons may, if desired, be redistributed from time to time between the subjects enclosed in the brackets.

OPTIONAL.—Linear Drawing from III. upwards.

Scholars whose handwriting is bad have writing lessons in III

APPENDIX IV.

The following are some of the special types of curricula approved by the Prussian Education Department:—

A.—The Frankfurt Curricula.

—	Common Foundation of Non-Classical Education (9 to 12 years of age).			(Alternatives.) The Classical School (Gymnasium).						(Alternatives.) The Semi-Classical School (Real-gymnasium).					
—	VI	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.
Religion	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mother Tongue and Historical Narration	5	4	4	3	3	3	3	3	3	3	3	3	3	3	3
Latin	—	—	—	10	10	8	8	8	8	8	8	6	6	6	6
Greek	—	—	—	—	—	8	8	8	8	—	—	—	—	—	—
French	6	6	6	2	2	2	2	2	2	4	4	3	3	3	3
English	—	—	—	—	—	—	—	—	—	—	—	6	4	4	4
History and Geography	2 Geo	2 Geo	5	3	3	2	2	2	3	3	3	3	3	3	3
Mathematics	5	5	5	4	4	3	4	4	3	4	4	4	5	5	5
Natural History	2	2	2	2	2	—	—	—	—	2	2	—	—	—	—
Physics	—	—	—	—	—	2	2	2	2	—	—	3	2	2	2
Chemistry	—	—	—	—	—	—	—	—	—	—	—	—	2	2	2
Writing	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—
Drawing	—	2	2	2	2	—	—	—	—	2	2	2	2	2	2
Total	25	25	26	28	28	30	31	31	31	28	28	32	32	32	32

Physical Training, three lessons weekly in all classes.

Singing, various.

Optional instruction in Drawing (Gymnasium) in II. and I. (two lessons a week).

Optional instruction in English (Gymnasium) in IIA. and IB. (two lessons a week).

Optional instruction in Hebrew (Gymnasium) in IIA. and IB. (two lessons a week).

The Arabic figures in the above table show the number of weekly lessons in school in each subject. Each lesson lasts fifty minutes. The table does not include home work.

The classes rise from VI. to IA.

B.—TIME TABLE OF THE OBERREALSCHULE WITH REFORM-REALGYMNASIUM AT KIEL (1901).

—	Common Foundation of Non-Classical Education (9 to 12 years of age).			(Alternatives.)											
				The Non-Classical School (Oberrealschule).						The Semi-Classical School (Reform-Realgymnasium).					
—	VI.	V.	IV.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.	IIIB.	IIIA.	IIB.	IIA.	IB.	IA.
Religion	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mother Tongue	5	4	4	3	3	3	4	4	4	3	3	3	3	3	3
Latin	—	—	—	—	—	—	—	—	—	8	8	6	6	6	6
French	6	6	6	6	6	5	4	4	4	4	4	3	3	3	3
English	—	—	—	5	4	4	4	4	4	—	—	6	4	4	4
History and Geography	2	2	5	4	4	3	4	4	4	4	3	3	3	3	3
Mathematics	5	5	6	6	5	5	5	5	5	4	4	4	5	5	5
Natural History	2	2	2	2	2	2	—	—	—	3	2	—	—	—	—
Physics	—	—	—	—	2	2	3	3	3	—	2	2	2	2	2
Chemistry and Mineralogy	—	—	—	—	—	2	3	3	3	—	—	—	2	2	2
Writing	2	2	2	—	—	—	—	—	—	—	—	—	—	—	—
Drawing (Free-hand)	—	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total	25	25	29	30	30	30	31	31	31	32	30	31	31	32	32
Physical Training	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Singing	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

OPTIONAL.—Linear Drawing (two lessons weekly) in IIIA. upwards, both in Oberrealschule and Realgymnasium.

The classes rise from VI. to IA. The Arabic figures show the number of weekly lessons in school in each subject. The table does not include home-work.

In IIIB. and IIIA. scholars whose handwriting is bad have writing lessons.

—TIME-TABLE OF THE BERLIN REALSCHULEN (NON-CLASSICAL SCHOOLS WITH SIX-YEARS' COURSE), 1901.

[*See* SPECIAL REPORTS ON EDUCATIONAL SUBJECTS, Vol. I. p. 373 *et seq.* The special characteristic of this Time-table is that the first foreign language is put off till IV. (*i.e.*, till eleven years of age), and the second foreign language till II. (*i.e.*, till thirteen years of age). This was done in order to enable boys who should enter the secondary school from the elementary school at eleven years of age to begin their first foreign language with their fellow scholars, instead of (as would be the case under the ordinary curriculum) finding themselves two years behind in their study of that language. But it is understood that many of the Berlin secondary school masters feel that French and English ought each to begin one year earlier than is at present allowed by this Time-table.]

—	VI.	V.	IV.	III.	II.	I.
Religion	3	2	2	2	2	2
Mother Tongue	7	7	4	4	3	3
French	—	—	8	8	6	6
English	—	—	—	—	6	6
History	1	1	2	3	2	2
Geography	2	3	2	1	1	1
Mathematics	5	6	6	6	5	5
Natural History	2	2	2	2	2	—
Physics	—	—	—	2	2	2
Chemistry & Mineralogy	—	—	—	—	—	2
Writing	3	2	—	—	—	—
Drawing	2	2	2	2	3	3
Total	25	25	28	30	32	32
Physical Exercises	3	3	3	3	3	3
Singing	2	2	2	2	2	2

The classes rise from VI. to I. Classes III., II., and I. above correspond to IIIB., IIIA., and IIB. respectively in a nine-years' school. The Arabic figures show the number of weekly lessons in school in each subject. Home-work not shown.

APPENDIX V.

Limitations on Freedom in Teaching Contemporary French History in French Public Secondary Schools.

The following decree was issued by the French Minister of Public Instruction in March, 1901. It forbids allusions, in the historical lessons in secondary schools, to any facts in French internal politics since 1875:—

Monsieur le recteur,

Mon attention a été récemment appelée sur certaines difficultés auxquelles pouvait donner lieu l'application du programme d'histoire contemporaine dans les lycées et collèges.

J'ai cru devoir consulter à ce sujet la section permanente du conseil supérieur de l'instruction publique.

La section permanente a été d'avis que, en ce qui concerne l'histoire intérieure de la France, le cours doit s'arrêter, conformément, d'ailleurs, aux dispositions du chapitre II du titre III dudit programme, au vote des lois constitutionnelles de 1875.

Par suite, dans ses leçons sur les sujets indiqués au titre IV—Développement ou transformation des principes de 1789—le professeur s'abstiendra de faire intervenir les faits de politique intérieure postérieurs à la date de 1875.

Vous voudrez bien inviter MM. les professeurs à conformer désormais leur enseignement à cette interprétation.

Vous donnerez, en même temps, des instructions pour qu'il ne soit mis entre les mains des élèves, comme livres scolaires ou comme livres de bibliothèque à leur usage, que des ouvrages conformes à ce programme. Les ouvrages qui contiendraient l'histoire des événements relatifs à la politique intérieure qui se sont produits en France depuis 1875 ne devront plus être laissés à la disposition des élèves.

Recevez, etc. Georges Leygues.

This decree was the subject of an interesting article in the *Temps* of March 8th, 1901. The writer of the article stated that the distrust felt by many parents for the political tendencies of some of the masters in secondary schools has been one of the causes of the crisis in French secondary education. He argued that, however much a teacher may desire to be impartial and scientific in his treatment of history, he cannot wholly eliminate personal bias or preconception from his treatment of political facts which have occurred within the last quarter of a century. Nor, he maintained, can facts so recent have passed into the calmer sphere of scientific history. Might not the writer, however, have gone further than this, and have maintained that, even in regard to periods far more remote in point of time from our own day, there are opportunities for unconscious partisanship in historical teaching? Everything depends on the intellectual fairness and open-mindedness and tact of the teacher. Where national opinion on political and ecclesiastical principle has become polarised, the best kind of teaching of history becomes (so far as the common schools are concerned) frequently impossible, owing to suspicions and lack of mutual confidence. Of course, under some conditions the majority of the nation, or the ruling power, may insist on the "historical" lessons in the schools being used as a channel for imparting a particular view of controverted points. But this process corresponds to what used to be called in England "tuning the pulpits." It opens the door to hypocrisy and intellectual dishonesty, and sterilises much that is best in the teaching of history. Freedom is the breath of life to education. Schools cannot do their best work under a sort of martial law. Where circumstances permit, an earnest teacher should be allowed to speak his full mind (of course, with due regard to the consciences

of the pupils and to the possible collateral effect of his teaching on the general welfare of the school, and on the confidence felt in it by the parents of the pupils) about the moral and political issues which necessarily underlie the historical narrative of the developments of great events. Is not it better that teachers should "speak (what they believe to be) the truth in love" than mask their real beliefs under an appearance of indifferentism? Are not an attitude of mind, a reasoned conviction, a clear belief in the essential rightness of some principles and the essential wrongness of others, necessarily involved in any effective teaching of history to children of almost any age? Not that the teacher should preach, but that the children should be put in a position to understand (so far as their age permits) why the struggles of a given period were morally and politically momentous. Without this, will not many of the pupils lose one of the chief benefits of historical study—namely, warning against certain perils? Dr. Arnold's definition of the moral and practical aim of historical teaching was as follows:—

"Let the pupil be taught to analyse the subject . . . . *to trace back institutions, civil and religious, to their origin;* to explore the elements of the national character . . . to observe how the morals and mind of the people have been subject to a succession of influences, some accidental, others regular; to see and remember what critical seasons of improvement have been neglected, what besetting evils have been wantonly aggravated by wickedness or folly. *In short, the pupil may be furnished, as it were, with certain formulæ, which shall enable him to read all history beneficially; which shall teach him what to look for in it, how to judge it, and how to apply it.*"*

The teacher needs to exercise great tact, sympathy, and fairness in his treatment of history. He is untrue to his office if he suppresses facts like a partisan, and attempts to warp the judgment of his pupils by keeping them in ignorance of circumstances and arguments which they ought to know in order to form a fair judgment. Though such facts are unfavourable to the teacher's own point of view, he is (at least, so it seems to the present writer) in honour bound to disclose them in so far as the minds of the pupils are mature enough to appreciate their weight and true bearing. Does not a nation need in each of its schools somewhat different types of historical teaching, and teachers taking different standpoints? But any such arrangement, if it is to be compatible with national unity, involves toleration of conflicting opinions. Out of such active toleration (not out of indifferentism or suppression of the facts) rises the best kind of national unity—that moral unity which embraces much intellectual diversity, and which rests not on monopoly, but on open-minded freedom. But the possibility of maintaining such a state of toleration depends in large measure on a scrupulous regard for historical truth being shown by all teachers, on the avoidance of all factious partisanship, and on a constant and open-minded study of the "sources." It can only flourish when there exists between teachers and pupils, and between teachers and the parents of their pupils, that trust and confidence which are the sign and outcome of long-continued labour and devotion on the part of the teachers concerned.

The following passages occur in the article in *Le Temps* (March 8th, 1901) referred to above:—

L'Histoire Dans Les Lycées.

Le ministre de l'instruction publique vient d'adresser aux recteurs une circulaire prescrivant de limiter à l'année 1875 l'enseignement de l'histoire dans les lycées et collèges. C'est une mesure excellente et dont il convient de féliciter sans réserve M. Georges Leygues. Notons d'ailleurs que la section permanente du conseil supérieur de l'instruction publique, ayant été consultée, a été de l'avis du ministre.

La décision sera peut être critiquée comme attentatoire aux droits de la science et de la pensée. On représentera M. Georges Leygues et les membres

* *Miscellaneous Works*, 1845, pp. 359–60.

de la section permanente du conseil supérieur comme les partisans d'un système suranné de censure, d'obscurantisme et de mise à l'index. Mais ces railleries et ces protestations ne feront pas que ces messieurs n'aient pas rendu le service le plus signalé et le plus opportun à l'enseignement secondaire public.

Les droits de la science et de la pensée sont infiniment respectables. Ils sont parfaitement respectés au ministère de l'instruction publique et au conseil supérieur, mais ils ne sont nullement en jeu dans cette affaire. On ne prétend pas supprimer l'histoire de ces vingt-cinq dernières années, ni condamner les élèves des lycées et collèges à l'ignorer éternellement. On estime seulement qu'il y a temps et lieu pour tout, qu'il importe de ne pas tout mêler et tout confondre. Les droits de la pensée sont illimités en soi. Mais, dans la pratique, un intérêt vital peut leur imposer certaines réserves. La politique est une chose fort importante, passionnante même, si l'on veut. En tout cas, c'est un devoir de s'y intéresser pour tous les citoyens d'un pays libre. Mais elle n'est pas à sa place au lycée.

Voilà la vraie question et la justification irréfutable de la circulaire de M. Georges Leygues. L'histoire, en général, est une science. Mais l'histoire de ces vingt-cinq dernières années n'est pas une science. Elle le sera peut-être dans un siècle ou deux. Pour l'instant, elle appartient tout entière à la politique. Il est aisé d'exposer d'une manière objective non seulement l'histoire ancienne, non seulement l'histoire du règne de Louis XIV., mais celle même de la Révolution et de l'Empire. Car la façon subjective et prédicante de comprendre l'histoire, à la Michelet, a disparu en ne laissant que quelques chefs-d'œuvre littéraires. Les historiens contemporains, les professeurs d'histoire ont aujourd'hui avant tout le souci scientifique de l'exactitude des faits, qui conduit naturellement à l'impartialité du jugement. Et puis, même sur le dix-septième, le dix-huitième et le commencement du dix-neuvième siècle, sauf quelques théories particulières et quelque peu paradoxales, une certaine unanimité s'est faite pratiquement. Les gens de droite ne nient plus guère 1789, ni ceux de gauche les services rendus à l'unité nationale par la monarchie.

Mais lorsqu'on arrive au dernier quart de siècle, les plus sincères désirs d'objectivité sont vains et l'impartialité scientifique est impossible. Il y manque le recul. . . . Enfin et surtout, on est impuissant à traiter scientifiquement des événements contemporains, parce qu'on les voit nécessairement à travers ses opinions ou ses passions politiques. Il est tout naturel que les professeurs d'histoire aient, comme les autres, des opinions ou même, si cela leur convient, des passions politiques. Mais ils savent eux-mêmes qu'ils cessent de pouvoir être historiens dans la mesure même où ils usent de leur droit de citoyens. . . . Il est inadmissible que chaque professeur puisse se croire autorisé à tenir en classe des discours de réunions publiques. Qu'ils soient socialistes, nationalistes ou tout ce qu'ils voudront hors du lycée. Mais les pères de famille envoient leur enfants au lycée pour y apprendre le français, le latin, la géométrie,—et même l'histoire,—non pour y discuter politique. La crainte de la politique, de l'influence politique de tel ou tel professeur, est l'une des causes les moins douteuses de la désaffection de beaucoup de familles et de la crise récente de l'enseignement secondaire. Pour nos lycées et collèges menacés dans leur prospérité, la circulaire de M. Georges Leygues sera peut-être le salut.

Since the above appendix was written, a case has arisen which illustrates the difficulty of the situation. Monsieur Hervé, master at a public secondary school at Sens, recently published, under the signature "Un Sans-Patrie," some articles in a little revolutionary newspaper. A complaint was lodged against him at the War Office, on the ground that the articles were a scandalous attack on the army, and that their authorship was notorious. The Minister of Public Instruction felt it necessary to inquire into the matter. When charged with the authorship of the articles, which are described as being "socialistic and anti-military," M. Hervé frankly acknowledged his responsibility for them, and re-asserted his belief in the opinions which he had there expressed. There was an investigation of the case by the Academic Council of Dijon. One sentence in the incriminated articles is quoted

as follows: "A la religion catholique on se borna à substituer une autre religion plus imbécile et plus sanglante encore, la religion patriotique." The Academic Council of Dijon unanimously decided that "the calling of a journalist, as understood by Monsieur Hervé, is incompatible with the duties of a schoolmaster and educator." The Council also, by a majority, voted that M. Hervé should be removed from his position on the staff of the public secondary school. (*Le Temps*, August 8th and October 25th, 1901.) On appeal, the Dijon decision was annulled by the Higher Council of Education in Paris, December 6th, 1901, but the Council nevertheless decided that M. Hervé should be removed from his post

It is obvious that an elaborate system of State organisation of secondary education carries with it, in practice, if not in theory, considerable limitations on the personal freedom of the schoolmasters engaged in it. Readers of Dr. Arnold's *Miscellaneous Works* are familiar with many admirable letters on political subjects, which fell under the censure of some politicians, but were actually written and published (not always under a pseudonym) when he was Headmaster of Rugby. Most Englishmen are probably of opinion that, in times of national crisis, much good can be done by temperate and courageous expression of convictions on the part of responsible and influential citizens who may, nevertheless, be engaged in the work of education. And, even to take an extreme case, it will be admitted that Dr. Joseph Priestley had a healthy influence on English education through his work at the Warrington Academy, though it cannot be denied that some of his published observations were critical of the Government, and of established institutions. There seem to be three courses open in this matter. The State may either (1) definitely adopt a policy of comprehension, cheerfully admitting varieties of opinion, and relying on the good-feeling and self-restraint of the vast majority of those concerned as the best safeguard against scandals; or (2) it may discourage any expression of opinion on any subjects of controversy, at the risk of producing insipidity, ironical evasion, or indifferentism; or (3) it may frankly regard the machinery of State education as intended to manufacture (so far as such a thing ever can be manufactured) a particular type of opinion. There are obvious limitations to the practical application of this third view, and it must not be forgotten that the machinery may not always be in the same hands. Nor can those who take this view fairly claim that "the State," as they employ the term, is really another word for "all of us."

In a striking address at the Concours Général des Lycées et Collèges (the great annual function of secondary education in Paris), held last July, Monsieur Leygues, the Minister of Public Instruction, eloquently described the economic changes which have revolutionised the conditions of national life and of international competition. "The old methods of education will not do for present needs. . . . Physical strength and courage no longer suffice for victory: Knowledge is necessary too. . . . Education is the first duty of a State which has a prudent regard for its own future." Then he went on to say that "the State must inspire the rising generation with the modern spirit and with Republican ideals." Life, not books, must be made the text of lessons; school-boys must be made to realise the facts of the environment into which they have been born. "Or, la démocratie, est le milieu, et la République est le fait. L'État doit enseigner la démocratie et la République." Some of his hearers may, however, have found it hard to reconcile this doctrine with the principle enunciated in a later part of the same address. "Nous ne prétendons asservir les membres de l'Université (*i.e.*, the staff of teachers in the whole of the public secondary schools as well as Universities in France) à aucune opinion, à aucune doctrine. Leur indépendance est la condition de leur dignité. Leur liberté de penser et leur liberté politique n'ont qu'une limite, mais infranchissable: la conscience de l'enfant, qui ne doit jamais être troublée, et l'intérêt de l'Université, qui ne fait qu'un avec l'intérêt supérieur de la nation." (*Le Temps*, July 30th, 1901.) But perhaps M. Leygues would reply, with Aristotle, that "tact, not reasoning, must decide the mean."

APPENDIX VI.

Outline of the Organisation of a French Secondary School.*

Classes Primaires.

[Comprenant dans la plupart des lycées une Section Enfantine.]

Enseignement Secondaire.

Division Elémentaire	Classe préparatoire	
	Huitième	9 ans.
	Septième	10 ans.
	(*Certificat d'études.*)	

Enseignement Secondaire.

	Classique.		Moderne.	
Division de Grammaire.	Sixième	11 ans.	Sixième	10 à 11 ans.
	Cinquième	12 ans.	Cinquième	11 à 12 ans.
	Quatrième	13 ans.	Quatrième	12 à 13 ans.
	(*Certificat d'études.*)			
Division Supérieure.	Troisième	14 ans.	Troisième	13 à 14 ans.
	Seconde	15 ans.	(*Certificat d'études.*)	
	Rhétorique. (*Baccal. class, 1re partie.*)		Seconde. (*Baccal. de l'enseignement moderne, 1re partie.*)	

Philosophie.	Mathématiques élémentaires.		Première (Sciences).	Première (Lettres).
(*Baccalauréat classique, 2e part., 1re série.*)	(*Bacc. classiq. 2e part., 2e série.*)	(*Bacc. moderne, 2e part., 3e série.*)	(*Bacc. moderne, 2e part., 2e série.*)	(*Bacc. moderne, 2e part., 2e série.*)

Mathématiques spéciales.

(*Ecoles polytechnique, centrale, etc.*)

* From the *Annuaire de la Jeunesse*, 1900, p. 181. (Paris: Nony et Cie., 1901.)

APPENDIX VII.

Reform of Classical and Modern Secondary Education in France.

The French Ministry of Public Instruction anticipated the completion of the report of the Parliamentary Commission on Secondary Education, and the following proposals were adopted by the "Conseil Supérieur de l'Instruction Publique," at their meetings, December 24-28th 1900.

TITRE I.

PROPOSITIONS

relatives aux formes et conditions générales de l'examen du baccalauréat.

I.—Les examens qui déterminent la collation du grade de bachelier de l'enseignement secondaire sont subis devant les Facultés des lettres et des sciences, au siège des Universités et dans les villes désignées par le Ministre de l'Instruction publique.

II.—Les jurys d'examen sont composés : 1° de membres des Facultés des lettres et des sciences ; 2° de professeurs en exercice ou honoraires de l'enseignement secondaire public, agrégés ou docteurs, désignés par le Ministre de l'Instruction publique.

III.—Les professeurs de l'enseignement secondaire siégeant dans les jurys ne peuvent examiner les élèves de l'établissement auquel ils appartiennent.

IV.—Les jurys sont présidés, suivant les examens, par des membres de la Faculté des lettres ou de la Faculté des sciences.

V.—Les jurys sont constitués de telle sorte que les épreuves diverses soient jugées par des examinateurs dont la compétence est établie par leur enseignement ou leurs études.

VI.—Aucun ajournement, soit après les épreuves écrites, soit après les épreuves orales, ne peut être prononcé qu'en vertu d'une délibération du jury réuni à cet effet.

VII.—Lorsqu'un candidat a produit le livret scolaire prévu par l'article 6 du décret du 8 août 1890, il ne peut être ajourné, soit après l'épreuve écrite, soit après l'épreuve orale, sans que le jury ait examiné son livret dans la déliberation prévue ci-dessus.

Mention de cet examen, signée par le Président du jury, est portée sur le livret et sur le bulletin d'examen.

VIII.—L'analyse de tout ou partie d'un des textes portés au programme ne peut constituer un sujet de composition écrite.

IX.—En vue d'assurer la concordance entre les études et l'examen et de maintenir le niveau des épreuves dans les diverses Académies, des sujets de composition peuvent être arrêtés par le Ministre.

X.—Les rapports des doyens sur les sessions, les textes et sujets d'épreuves écrites, des séries de compositions et de procès-verbaux des épreuves et des rapports de proviseurs et de principaux sur les résultats des examens du baccalauréat sont communiqués à une commission composée de membres du Comité consultatif de l'enseignement public (1re et 2e sections, enseignement supérieur et enseignement secondaire).

Cette commission fait un rapport d'ensemble au Ministre et indique les observations qu'il paraît utile de porter à la connaissance des jurys.

XI.—A de certaines dates, en vue de juger de l'état et de la marche des études, la commission fera la comparaison des résultats obtenus au baccalauréat à plusieurs années d'intervalle.

TITRE II.

PROPOSITIONS

relatives au plan d'études classiques et aux épreuves du baccalauréat de l'enseignement secondaire classique.

I.—Le cours d'études classiques a une durée de sept ans.

II.—L'âge moyen pour chaque classe demeure tel qu'il est prévu, à titre d'indication, par le programme actuel.

III.—L'étude de la langue latine est le fonds commun aux diverses formes de l'enseignement classique prévues à l'article suivant.

IV.—A l'issue de la classe de troisième, les élèves de l'enseignement classique peuvent opter entre :

1° l'étude du grec ;

2° des cours scientifiques développés ;

3° des cours complémentaires de langues vivantes qui auront comme sanction l'épreuve écrite prévue ci-dessous.

V.—Les débuts de l'étude de grec restent fixés à l'époque prévue par le programme actuel. Les cours spéciaux de sciences et de langues vivantes prévus à l'article ci-dessus sont institués à partir de la classe de seconde.

VI.—Tous les enseignements, sauf les enseignements à option, sont communs à tous les élèves, et ceux-ci restent réunis dans les mêmes cours. Toutefois, dans les classes nombreuses, la séparation des élèves pour les cours autres que les cours à option pourra être autorisée à titre exceptionnel par le Ministre, sur la proposition du chef de l'établissement et après avis du Recteur.

VII.—(*a*) Une troisième épreuve est ajoutée aux deux épreuves écrites prévues par le règlement actuel de la première partie du baccalauréat de l'enseignement secondaire classique.

Cette épreuve consiste, au choix des candidats, en :

une version grecque ;

une composition de sciences ;

une composition de langue vivante.

La nature de ces deux dernières épreuves sera ultérieurement déterminée.

(*b*) A l'épreuve écrite prévue pour la seconde partie du baccalauréat de l'enseignement secondaire classique (2e série) est ajoutée une composition portant sur la philosophie.

Cette seconde épreuve a pour base le programme de philosophie de la classe de mathématiques élémentaires.

TITRE III.

PROPOSITIONS

relatives au plan d'études modernes et aux épreuves du baccalauréat de l'enseignement secondaire moderne.

I.—L'enseignement secondaire moderne a pour objet essentiel la préparation aux professions agricoles, commerciales, industrielles et coloniales.

Il est fondé principalement sur l'étude des sciences, notamment des sciences physiques et chimiques, et des langues étrangères.

II.—Le cours d'études modernes a une durée normale de six ans.

Il est divisé en deux cycles : le premier d'une durée de quatre ans, le second d'une durée de deux ans.

Pendant toute la durée des études, l'enseignement garde la même orientation.

Les études des deux cycles ont un caractère à la fois général et pratique. Le programme et la répartition des cours peuvent comporter certaines variations suivant les régions et suivant les établissements. Dans le choix des exemples et des applications, on aura égard aux besoins des industries ou professions des diverses régions. A cet effet, il sera tenu compte des indications fournies par les conseils généraux ou municipaux, les chambres de commerce, les bureaux d'administration, etc.

TITRE IV.

PROPOSITIONS

relatives à la revision des programmes de l'enseignement classique et de l'enseignement moderne.

En conséquence des dispositions ci-dessus, il y a lieu de reviser les programmes de l'enseignement secondaire classique et de l'enseignement secondaire moderne et ceux du baccalauréat de ces deux cours d'études.

Il y a lieu notamment :

1° Dans l'enseignement classique, de simplifier les programmes d'enseignement de la grammaire, d'histoire de la langue et d'histoire littéraire.

L'enseignement théorique des grammaires grecque et latine, dans les classes de grammaire, sera réduit aux paradigmes généraux et aux règles indispensables. On ne mettra en usage dans ces classes que des précis conformes à ce programme ;

2° Dans l'enseignement des langues vivantes étrangères, de déterminer avec plus de précision, en vue de l'acquisition effective de la connaissance de la langue usuelle, les programmes et les méthodes d'enseignement ;

3° D'alléger et de simplifier le programme d'histoire et d'y faire une plus large place à l'histoire contemporaine ;

4° De reviser le programme de philosophie ;

5° De fortifier l'enseignement scientifique pratique dans les classes élémentaires et de grammaire et de mettre d'accord les programmes des cours scientifiques des classes supérieures avec la nouvelle organisation de l'enseignement ;

6° De réserver dans les cours d'histoire naturelle, de philosophie et d'économie politique, le temps nécessaire aux leçons qui traitent des dangers physiques, moraux et sociaux de l'alcoolisme et d'assurer à tous les élèves le bénéfice de cet enseignement.

7° De fortifier et de développer l'enseignement du dessin géométrique et du dessin à main levée, et de rechercher dans quelle mesure une sanction pourra être attribuée à cet enseignement.

Reform of Secondary Education in France.

(i.) Proposals of the "Conseil Supérieur de l'Instruction Publique," adopted in March, 1901 (from the *Temps*, March 22nd, 1901).

I.—L'enseignement secondaire moderne est fondé principalement sur l'étude des sciences.

II.—Le cours d'études modernes a une durée normale de six ans.

Il est divisé en deux cycles : le premier d'une durée de quatre ans, le second d'une durée de deux ans.

III.—Les élèves de l'enseignement secondaire moderne qui auront accompli le premier cycle dans les établissements publics d'enseignement secondaire seront admis à subir un examen à la suite duquel sera délivré un diplôme d'études secondaires modernes.

Les conditions de cet examen seront déterminées ultérieurement.

IV.—La division des élèves de la sixième année d'études en trois sections (première-lettres, première-sciences, mathématiques élémentaires) est abolie.

L'examen du baccalauréat de l'enseignement secondaire moderne est subi à l'issue de la sixième année d'études : il ne comporte qu'une série d'épreuves écrites et orales ; ces épreuves sont les mêmes pour tous les candidats.

Les mentions diverses du diplôme, instituées par le décret du 5 juin 1891, sont supprimées.

V.—Le diplôme du baccalauréat de l'enseignement secondaire moderne

conserve toutes les sanctions qui lui sont actuellement attribuées ; il ne confère pas le droit de s'inscrire dans les facultés en vue de la licence ès lettres, de la licence en droit ou du doctorat en médecine.

A ces propositions est joint le vœu suivant, qui a été également voté :

Le conseil s'associe au vœu déjà présenté par les représentants des Facultés de droit au conseil supérieur, tendant à ce que le brevet de capacité en droit, tel qu'il est délivré par les Facultés, soit supprimé et que, à sa place, il soit créé un nouveau grade, supposant deux années d'études dans une Faculté de droit et deux examens de fin d'année.

Ces études et ces examens porteraient exclusivement sur les principales branches de la législation française actuellement en vigueur.

Ce nouveau grade serait accessible aux bacheliers de l'enseignement secondaire moderne : il devrait être nécessaire et suffisant pour la nomination aux fonctions d'avoué, de notaire, de juge de paix, de greffier des tribunaux civils et des tribunaux de commerce, peut-être de l'enregistrement, la licence en droit, ayant, bien entendu, à ce point de vue, la même valeur.

(ii.) The French Parliamentary Commission on Secondary Education, and the proposals of the Ministry of Public Instruction for the reform of Secondary Schools.

La commission de l'enseignement s'est réunie sous la présidence de M. Ribot et a décidé de demander au ministre de l'instruction publique de venir conférer avec elle en vue de lui faire connaître les résolutions qu'il compte prendre au sujet de la réforme de l'enseignement secondaire.

On sait comment la situation se présente.

La commission, après sa grande enquête, a pris un certain nombre de conclusions sur lesquelles un débat doit avoir lieu devant la Chambre. Le ministre s'est engagé à n'appliquer aucune nouvelle mesure avant que ce débat ait eu lieu.

Entre temps, le ministre a consulté sur la même question le conseil supérieur de l'instruction publique qui, sur un certain nombre de points, a formulé des conclusions différentes de celles de la commission parlementaire et même, dans certains cas, contradictoires avec ces dernières.

La commission désire savoir à quel parti le ministre va se ranger, s'il adopte l'un ou l'autre système ou une combinaison transactionnelle de manière à pouvoir faire un rapport supplémentaire à la Chambre.

A l'issue de la réunion, M. Ribot s'est rendu auprès du ministre pour lui communiquer la demande de la commission. (*Temps*, May 24th, 1901.)

M. Leygues, ministre de l'instruction publique, et M. Rabier, directeur de l'enseignement secondaire, ont été entendus, hier, par la commission de l'enseignement réunie sous la présidence de M. Ribot.

L'accord entre le ministre et la commission s'est établi sur la plupart des questions concernant la réforme de l'enseignement secondaire, principalement sur les plans généraux d'étude et sur l'autonomie des lycées.

Le ministre a annoncé qu'avant la séparation des Chambres il demanderait la mise à l'ordre du jour, pour les premières séances de la rentrée, de la discussion des conclusions de la commission d'enseignement. (*Temps*, July 1st, 1901.)

NOTE ON THE REVISED CURRICULA AND PROGRAMMES OF WORK FOR HIGHER SCHOOLS FOR BOYS IN PRUSSIA, 1901.

The great educational conference, which was summoned to Berlin by William II. soon after his accession to the Prussian throne, though ending really in a compromise, prepared the way for many important changes in the courses of study in Prussian higher schools for boys. These changes were embodied in the "Lehrpläne and Lehraufgaben," issued in 1892. By the permission of the Prussian Government, an English translation of this important document, prepared by Mr. W. G. Lipscomb (late assistant-master of University College School, London, and now headmaster of the County School, Isleworth), was published in Vol. III. of Special Reports on Educational Subjects, issued 1898.

In May, 1900, a second higher school conference met at Berlin, in which the chief question under discussion was the equality of status of the three types of higher schools with a full nine-years course. Other reforms were proposed during the debates, and certain changes were recommended in the curricula of these schools. Such of these proposals as found acceptance with the authorities of the Education Department have been incorporated in a new issue of the time-tables and programmes of work published in the July number of the *Centralblatt für die gesamte Unterrichts-Verwaltung in Preussen* for June–July, 1901, and since that date issued as a separate pamphlet by the printing press of the Waisenhaus at Halle.

It is thought that some indication of the nature of these changes will be acceptable to English readers. It is not, however, intended in this paper to offer a new translation of the current *Lehrpläne*, which came into force at Michaelmas this year, but only to d aw attention to the most important alterations.

Issued without any prefatory letter to the Provinzial-Schulkollegien, enjoining their immediate introduction, the programmes of work remain in their broad outlines unchanged; indeed, the differences are less than might have been anticipated from the changes in the number of hours assigned to the various branches. It may be noted that in the upper division the matter of the instruction is less frequently distributed between the individual classes than in the former edition, thus securing to the authorities of each institution in the later stages of school instruction greater freedom to select and arrange the material in accordance with the special needs of the pupils and the circumstances of the school.

In the "Notes on Method" considerable changes have been introduced, and herein lies the most important advantage to be drawn from the new programmes. For they reveal the spirit of the changes and constitute, as all teachers will admit, a statement of pedagogical principles of no little value. What follows is a full translation of the most important new passages, the substances of the others being added in summary form. The two appendices have been reduced to one and the matter greatly compressed; here, too, the new passages are reproduced *in extenso*, and sufficient indication given to identify those portions of the previous edition which have been retained.

(1) Religious knowledge.

The old programmes have been reproduced without change.

(2) Mother tongue.

Into the instruction in the mother tongue few changes have been introduced. The injunction as to the absolute identity of grammatical terminology in Latin and the mother tongue is not repeated. This is, perhaps, to be regarded simply in the light of a verbal alteration, or the omission may be due to the fact that in the Reform Schule no Latin is taught in the two lowest forms. The type of curriculum, known as the Reform Schule, though never mentioned throughout this document, is yet known to enjoy a high degree of favour.

Increased attention is paid to geographical topics in the selection of reading material for the lower stages, and to the works of modern authors for the later stages. For example, Heyse and Grillparzer are characterised as desirable. In the upper stage the reading material is not distributed between the classes, the selection and arrangement within the prescribed limits are left to the authorities of each individual school. It is held with regard to the prose works read in the upper classes, that they should provide the matter for the examination of important general ideas. It is suggested that aptly-guided reading of this kind may give effective support to an introductory course in philosophy, which it is desirable to include in the programme of Prima, or where circumstances are unfavourable to such inclusion, it may form in some degree an efficient substitute for such a course.

With regard to method, it is noted that it is not advisable to read a play in class right through from beginning to end; reading in parts is also used very sparingly, and only in specially suitable scenes, and, as a rule, only after discussion and proper preparation. In the upper classes it is always to be borne in mind that the discussion of the context and its comprehension are the main purpose, and this should not be thwarted by the teachers giving lengthy lectures on literary history. The same earnest attention as heretofore is paid to the training in oral expression. Short lectures and reports by the pupils on what they have read or heard are still used for this purpose, but a warning is given that such reports must never degenerate into a repetition of essays previously learnt by heart, but they must gradually develop in the pupil the power of repro-

ducing in a simple and suitable fashion while speaking freely sound knowledge and clear views. All teachers must take full advantage of every means which may help to develop the power of expression in speech and writing.

The aim of the instruction is formulated somewhat differently in the new version. In 1892 it ran as follows for the Gymnasium :— "To enable boys to understand the more important classical writers of the Romans, and to give them a linguistic training." In 1901 the aim is expressed thus :—"On the sure basis of grammatical training to enable boys to understand the more important classical writers of Rome, and thus to introduce them to the intellectual life and culture of the ancient world." The aim of Realgymnasium is confined to the comprehension (based on accurate grammatical knowledge) of the easier works of Roman literature. (3) Latin.

In the revised time-tables six extra hours are assigned to Latin in the Gymnasium and the Realgymnasium, but whereas in the fully classical school these extra hours are almost entirely devoted to the study of grammar, in the more modern type it is the reading of books that gains the advantage. In schools of both types rather less composition is done, no retranslation back into Latin is demanded in Sexta, and in the upper classes of the Gymnasium the Latin summaries of reading matter are no longer required.

Some slight changes in the apportionment of authors between the various classes have been introduced—*e.g.*, Ovid may sometimes be studied in IIIB., though, as a rule, the reading in this class is confined to Cæsar, De Bello Gallico, i.-iv. ; in IIIA. selections from the Bellum Civile may be substituted for portions of Bell. Gall., v.-vii. ; in IIB. Vergil may be begun in the second half-year, though this author is chiefly to be studied in IIA. Certain orations of Cicero are suggested by name—*e.g.*, in IIB. *Pro Sext. Roscio, In Catalinam* and *De Imperio Cnei Pompeii ;* for IIA., *Pro Archia, Pro Ligano, Pro Rege Deiotaro, In Cæcilium,* and *Cato Major ;* for I., *In Verrem,* iv. or v., *Pro Plancio, Pro Sestio* (all with omissions), *Pro Murena* have been chosen together with selections from his philosophical and rhetorical writings and his letters. The *Germania* of Tacitus is also to be read at least up to Chapter 27 ; and either the *Agricola* or *Dialogus* (selections) together with selections from the Annals and Histories. In the Realgymnasium Livy and Cicero may be substituted for Cæsar in IIA., while in I. a greater amount of Cicero and selections from Horace (*Odes*) and Tacitus (*Germania*) may be read ; it is, however, forbidden to read two authors concurrently.

With regard to the treatment of grammar the omission of all unnecessary detail is even more strongly insisted on. "The instruction is always to be confined to the most important points, to what is frequent and characteristic, so that a sharp line is to be drawn between that which the pupil is intended to acquire for permanent possession and that which is explained to him casually

before or during the reading-lesson. The caution refers both to vocabulary and grammatical rules, which are still often overloaded with too much detail."

The following paragraph deals with composition :—"The pieces for translation into Latin to be done in class are, as a rule, to be composed by the teacher. They must be simple, but yet at the same time make sufficient demands on the boy's intellectual power, so that the translation may be regarded as his independent work. If they are connected with the reading material care must be taken to avoid their becoming mere memory work. Instead of written home-work preference should generally be given to carefully-conducted oral translation out of an exercise book, which in matters of grammar and style is restricted to what is most important, and in respect of content is calculated to promote the general aim of the instruction."

(4) Greek

According to the new definition the aim is to enable boys by means of a sufficient knowledge of the language to form acquaintance with some of the literary productions distinguished both in matter and in style, and through them to gain an insight into the intellectual life and culture of Ancient Greece.

The hours assigned to Greek have not been increased, and no important change has been made in the course of study. With regard to the reading matter the following note has been added :—"Based on a thorough grammatical knowledge, the instruction must aim at revealing to the pupils the train of thought and artistic form of the work which they are reading, both as a whole and in its various parts. In dealing with longer poetical works the teacher must avail himself of good translations to supplement those portions which are read in the original. As a rule Xenophon is not to be read after IIB. It is advisable to make a standard selection from the Homeric poems indicating those portions which are to be read regularly, those which are not to be read, and those which are optional. In order to overcome the difficulties presented in the choruses in the Greek tragedies, it is necessary to replace preparation at home by the pupil by the teacher's help in class ; the same remark applies to the more difficult passages in prose—*e.g.*, many speeches in Thucydides."

(5) Modern languages—French and English.

The "aim" for the Gymnasium remains the same, except that for the words "not too difficult important writings" are substituted "the most important writings." In the case of the Realgymnasium the new programmes add "some knowledge of the chief chapters in the literary and social life of the French people." The same remark applies to the Oberrealschule; and the old "linguistic training" is replaced by "insight into the grammatical system of the language." For the Realschule the new programmes add a separate aim—viz., "a comprehension of the easier works of modern times, linguistic training, and a certain facility in the use of the written and spoken language." In the case of English the only difference is the formulation of an aim for the Realschule.

This runs as follows:—"Correct pronunciation, some exercise n the oral use of the language, a knowledge of the accidence and the more important rules of syntax, comprehension of easier books."

In the actual programmes there are practically no changes to notice. That the reading material should have a substantial content is more than once insisted on, and in the modern schools more attention is to be paid to the history, literature, and culture of the French and English nations.

On the other hand, the "Notes on Method" have been entirely recast and are here translated in full.

1. *Pronunciation.*—Earnest attention must be paid in all stages to the acquisition and retention of a good pronunciation. After it has been taught at the very outset of the instruction in a special short course, and acquired by means of a manifold and exact practice, it must still be constantly cared for in all successive stages and increased demands made on the pupil's correctness, fluency, and accent. With reference to the cases where the pronunciation is really unsettled, some agreement must be arrived at between the teachers of the same institution. It must ever be the care of the modern-language teacher that the training and control of the organs of speech thus attained redound to the advantage of the pronunciation of the mother tongue.

2. *Conversation Exercises.*—Conversation exercises, which in their simplest form are to be employed from the beginning, must accompany the instruction in all classes, and be entirely omitted in no lesson. Here, too, the demands made on the pupil are to be suitably increased, not only in matter—by means of a regular and methodical extension of the material used—but also in form, *i.e.*, in fluency and in more connected sentences. However, simple dialogue must be the rule. Conversation exercises connected with reading must be supplemented by such as deal with the incidents and relations of ordinary life. Moderate use is recommended of pictures, which have some meaning and are not distasteful in execution, of maps, of illustrated papers, and such like aid to teaching. In every case care must be taken that such exercises do not degenerate into a mechanical interchange of question and answer. Teachers are warned against attaching excessive importance to mere externals in the present conditions of foreign countries to the neglect of other matters of more importance for their relations to Germany.

3. *Vocabulary.*—There should be connected with these conversation exercises the acquisition and retention of a not too narrow vocabulary, including concrete things. To this vocabulary must be added a stock of common and well-established phrases, both to be derived from suitable reading pieces and from the observations of pictures and actions. List of words, classified according to their meaning, can also render good service. Practice in the collection

of words philologically connected, or of allied meaning, may be pursued even in the upper classes, not only to fix them better in the memory of the pupils, but also to heighten the linguistic interest. This fixing of the vocabulary also affords many opportunities for incidental instruction in the history of the language, which must be utilised according to the grade of the class.

4. *Reading Material.*—Reading must form the chief branch of the instruction, and, at least in the second half of the course, provide material with a content of value and written in a good literary style. In making the selection special attention must be directed to works that introduce the pupils to a knowledge of the customs and culture of the foreign people; in modern schools technical and scientific reading material must also be included. The reading matter contained in many school text-books needs careful sifting, and steps must be taken to secure that any individual single "year" is preserved from a harmful one-sidedness of reading books. Though many linguistic exercises—grammatical and other—are connected with the reading material, the latter must, least of all in the upper classes, never be relegated to a subsidiary *rôle.* In all grades, and with increasing proficiency, the reading of French and English texts fluently, lively, and with proper accent must be carefully practised. It will prove a valuable aid to let the pupils learn and carefully deliver well-selected poems and pieces of prose. Attempts to replace the translation of foreign texts into good German by a discussion of the content in the foreign tongue can only be permitted so far as the skill of the teacher and the development of the pupils guarantee a full comprehension of the train of thought.

5. *Grammar, etc.*—Grammar is to be subordinated to reading, but must not be thrust so far into the background that all systematic arrangements and all distribution of fixed portions of grammar between the separate classes are given up; a regular system must stand out clear before the pupil at the end of the course. This must most especially be the case at the Oberrealschule and the Realschule, but it is to be observed (with proper distinctions) at all other types of school. Allusions to other languages learnt by the pupils are never to be neglected. The usual sequence in accidence and syntax is to be retained, but not so rigidly that important syntactical rules may not be taken earlier and less common forms in the accidence postponed. The chief aim must be to secure a perfect mastery of what is usual, while in the case of not a few grammatical rules it will be found sufficient to draw attention to them during the reading. How far (if at all) in the upper classes an extension of the grammatical instruction is to be permitted, in the shape of an explanation of such phenomena, either from the logical, psychological, or from the historical point of view, depends upon the conditions of each individual institution. In no case can such an "extension" replace a real mastery of grammatical rules: repetition and perfection are

the things most needful. Grammars written in French and English are not to be used.

How much attention is to be devoted to the study of synonyms, metres, and style is determined by the actual need. Instruction on these points is to be connected, when occasion offers, with concrete examples. The relation between knowledge and application must be quite different in the case of a living from that of a dead language; in the former case a many-sided application, full of life, must always be the natural aim.

6. *Written Exercises.*—Although on the whole a greater weight is attached to the oral exercises, yet written work is by no means to be neglected. As a rule, in modern schools—at least in the lower and middle classes—one exercise, even though it be a short one, should be done each week, while in the upper classes and in the Gymnasium longer intervals may be allowed. Written exercises are not to be confined to translations into the foreign tongue; spelling exercises as well as "recastings" (*Umformungen*), even syntactical in character, and imitations are to be included at an early stage, especially in modern schools, in order to lead up to the free compositions in the upper classes. Written translations into the foreign tongue may from time to time be replaced by free compositions, under conditions similar to those laid down with regard to the translation of the reading material. Nevertheless, these exercises, by means of which the pupil is gradually led on from a literal translation to a freer expression of the same thought in another dress, cannot be entirely dispensed with. The essays of the upper classes in modern schools (four at home and two in class in each year) are not to be confined to historical subjects, but most varied topics are to be selected.

7. *Vehicle of Instruction.*—It is perhaps desirable that the teacher should employ (as far as he profitably can) the foreign idiom in his instruction, but the thoroughness and earnestness of the instruction must not be impaired thereby. For more difficult and exhaustive explanations, especially in grammatical matters, it will always be well to use the mother tongue; on the other hand, the employment of the foreign idiom is especially suited for instruction on points of literature and history.

8. *Concentration.*—Attention must be paid in all grades to a proper combination of the different branches of modern language teaching, especially in the upper grade of modern schools, where the separate aims which have also to be pursued may easily endanger the general result of the instruction.

The programmes of work, with the exception of a few slight verbal changes, remain unaltered. A new form has been given to the note dealing with instruction on social and economic topics. It now runs as follows:— 6) History.

"The instruction in economic and social questions, in their relation to the present time, prescribed for IIB. and IIA. demands peculiarly reliable tact and great circumspection in the choice and treatment of matter to be

dealt with. The instruction, given in an ethical and historical spirit, must discuss on the one hand the justness of many of the social demands of the present day, and on the other hand expose the ruinous character of all violent attempts to alter social conditions. The more objectively the historical development of the mutual relations of the different classes of society, and in particular the position of the working classes, is treated, and the continual progress towards a better state of things is shown, without any display of prejudice, the sooner will it be possible, seeing the healthful common sense of our younger generation, to enable them to form a clear and calm judgment of the dangers attending the unjustifiable social ambitions of the present day.

"This instruction in economic and social questions may easily be introduced without any inappropriateness where in the course of history the solution of such problems has been attempted. Wherever the history of the last centuries offers an opportunity of reviewing the social reforms effected by the civilised States of Europe, the transition to a representation of the services of our ruling House in furthering the national well-being down to the most recent times is a natural one."

(7) Geography. [It should be remembered that the new curriculum for the Oberrealschule assigns one hour a week in each of the three upper classes to this branch, which in the case of the Gymnasium and Realgymnasium is coupled with history.] With the exception of a few verbal alterations, no changes have been introduced for the Classes VI. to IIB. For IIA. and IB. the following is the prescribed programme:—

Comprehensive repetition of what has previously been learnt: In the Oberrealschule, the outlines of physiography and occasional instruction in certain chapters of anthropology. In the Gymnasium and Realgymnasium the chief points of these branches are to be succinctly taught; outlines of mathematical geography in connection with the instruction in mathematics or physics. Comparative survey of the most important lines of communication and trade routes down to the present time, in the Oberrealschule in the special hours of geographical instruction, in the Gymnasium and Realgymnasium in connection with the history lesson, but in each half year at least six hours are to be reserved for geographical repetition.

In the "Notes on Method" strong insistence is laid on the proper use of maps. After the pupil has learnt to read them aright, it is said that a wall map or atlas must form the starting point and the centre of the instruction; the text-book is only to be the pupil's guide for recapitulation at home.

Drawing is of great importance for this branch of instruction, as contributing towards the formation of clear ideas and towards the fixing in the memory of sound geographical knowledge. But teachers are warned not to make excessive demands on their pupils, but to be content with outlines, skeleton maps, and suchlike broadly-defined representations on the blackboard. Map-drawing, as a rule, is not to be done as home-work. The pupils will have to confine themselves to the production of simple sketches during the lesson after a preparatory drawing on the part of the teacher; the mere reproduction of copies is not to be permitted. In the upper stage

drawing may very usefully be employed in the regular repetition lessons.

It is desirable that in all schools the geographical instruction be placed in the hands of teachers who have made a special study of this branch, and care is to be taken that at any school the instruction is not distributed among too many masters. In the repetition lessons in the upper classes of Gymnasien and Realgymnasien the instruction in political and physical geography is to be given by the teacher of history; in mathematical geography by the teacher of mathematics or physics.

The following are the main changes introduced into the "Notes on Method":— (8) Mathematics.

1. In the higher schools the chief object of the mathematical instruction is to provide such a training of the intellect as will enable the pupil to apply correctly in independent work the ideas and knowledge which he has gained. Therefore in all the various divisions of this branch the aim must be to secure a clear comprehension of the propositions to be developed and of their proof, as well as practice and skill in their application. Accordingly the teacher of mathematics, equally with the teacher of any other branch, is urged to use every opportunity to foster a proper use of the mother tongue, and this point is most particularly to be remembered in the correction of written work—especially of more independent work done at home, which in the upper classes is to be done, as a rule, every four weeks, in addition to the usual class exercises.

3. The instruction in geometry begins with a preparatory course, which, starting with the consideration of simple bodies, develops the power of observation and at the same time gives the pupil opportunities of gaining practice in the use of compasses and ruler.

5. In all schools the most careful attention is to be given to practice in problems of construction, and this practice must accompany the instruction up to the highest classes; but any problem must be excluded which demands for its solution a knowledge of remote principles or special skill in execution. By means of a reasonable selection of exercises, which may be solved by common methods and out of the materials already at the pupil's command, and through the clearness of his instruction, the teacher must awaken in his pupils a feeling of independent capacity and use to the full the formative force of such exercises.

6. The omission of a preparatory course in trigonometry and solid geometry in IIB. of the Gymnasium does not preclude that, when these branches are taken up at later stages, the first instruction should not be of such an introductory character. Trigonometry is to be treated at first by means of figures —that is, geometrically; and, in order to reach as soon as possible the solution of triangles, only such formulæ are to be practised as are absolutely required for this purpose. Solid geometry is to begin with the consideration of simple bodies

(*e.g.*, cubes and prisms), and a more strictly systematic instruction is not to be given till later. In modern schools such introductory courses in trigonometry and solid geometry must be exclusively and under all circumstances followed. Here, as in the earlier stages, models and mathematical wall charts will prove of great assistance in securing proper visualisation and thoroughness of instruction.

7. How far the different branches of mathematics are to be treated simultaneously or successively must depend upon the conditions prevailing at any given school. In modern schools the extent to which these different branches can be carried will differ with the different "years" of pupils, and in the Oberrealschule the difference will be greater than in the Realgymnasium. It was not considered advisable to define more narrowly the optional branches, and it is by no means necessary to treat them in any detail, but the opportunity to deal more fully with these branches is not to be withheld. The results of experience will make it possible at a later date to fix in greater detail the aims of such instruction.

8. For the highest class of the Gymnasium the programme prescribes the introduction of the pupils to the important theory of co-ordinates, and the simplest presentation possible of the fundamental properties of conic sections, which can also be given synthetically. But it is not intended that systematic instruction in analytical or the so-called new geometry should be given. Equally little do the formulæ necessary to understand mathematical geography and astronomy call for any extended treatment of spherical trigonometry. They may be simply deduced from a consideration of the properties of solid angles. Here, too, as elsewhere, care must be taken that, side by side with such knowledge, skill in its application is acquired, and this point of view must determine the selection and the extent of the material of instruction.

9. The defect of the mathematical instruction in the upper stage—viz., that it is too exclusively of the nature of calculation—will be best remedied by practice in geometrical observation and construction. In solid geometry (quite apart from the question of descriptive geometry) it is specially important to prepare and assist the pupil to understand the principles of projective drawing.

10. In the highest class, side by side with the solution of problems in the different branches of mathematics, there must be a comprehensive revision of the theories and processes already learnt. An opportunity will thereby present itself of giving to the pupils a fuller understanding of the theory of functions with which they have become partially acquainted at a previous stage.

11. The independent position which mathematics occupy in the curriculum of the higher schools does not prevent—least of all in the upper stage—the instruction from gaining in value, if

the pupil learns how the results of this science may be applied to other branches of knowledge, whether they be those of every-day life or physical science, and if opportunity be given for the development of his mathematical sense by practice in application in these directions. Accordingly it is permissible to make a more extended use of those parts of physics which admit of mathematical treatment, not only in the physics lesson, but also in the mathematical instruction. In the Gymnasium, it is true, owing to the small number of hours allotted to the branch, such practice can only be really fruitful if the instruction in physics and mathematics be entrusted to one and the same teacher, as has been suggested by the brackets of the time-table. In the modern schools, owing to the greater number of hours, there is not an equal measure of necessity for this combination.

Natural science.

The following new paragraph has been placed at the head of the "Notes on Method":—

"In the instruction in natural science the acquisition of a number of separate items of information, however valuable for ordinary life, is not an end in itself, but only a means towards the promotion of general culture. The pupil is to learn to use his senses rightly and to describe correctly what he has observed; he is to gain an insight into the regular sequence of natural phenomena and into the importance of these natural laws for every-day life; he is also to be brought to understand, as far as is possible in the school, the means by which man has attained and can attain a knowledge of these laws. A larger place in this instruction is to be given to observation and experiment."

The following sentences have been added to the "Notes on Botany and Zoology":—

"From the lowest stage upwards the attention of the pupils is to be directed towards the vital phenomena and relations, including allusions to the geographical distribution of plants and animals. Here special regard must be paid to the pupil's own observations; while, on the other hand, care must be taken to avoid anything that passes beyond the comprehension of the class. Practice in the recognition of native plants is desirable, and can be carried out according to the classification of Linnæus. It is admissible in all stages to bring to the notice of the pupils simple phenomena from other branches of science, so far as they help the pupils to understand animate nature and do not pass beyond their comprehension. In all stages the pupils are to be given practice in drawing in simple outline what they have observed Scientific excursions will afford the possibility of bringing home to the observation and comprehension of the pupils the phenomena of life in the animal and vegetable world, and the mutual dependence and community of existence of both, as well as opportunities for further very valuable practice in recognising native plants."

4. The instruction in anthropology at the Gymnasium can be achieved in three months' work if it is chiefly confined to the anatomical side, leaving the physiological side to the instruction in chemistry and physics. For this purpose it will be necessary in one of the top classes (preferably in I.) to devote some of the hours assigned to physics to a course in physiology.

5. The instruction in physics and chemistry (including mineralogy) is divided into two stages:—

(*a*) In the first stage, including as a rule IIIA. and IIB., only the most simple theories, which lie nearest to the interest and comprehension of the pupil, are to be dealt with. Here experiment of the simplest kind possible forms the basis of the instruction, and the pupil's own experience is to be taken as the starting-point. The selection is to be confined to the matters noted in the programmes of work. In modern schools, as well as in Gymnasien, the barest outlines of chemistry are to be included in this course as preparatory to later instruction, since in the second stage, beginning with IIA., special hours are assigned to this branch. The distribution of the four hours devoted to natural science in the IIB. of Realgymnasien between the descriptive and experimental sciences is left to the discretion of each institution. Under special circumstances—especially in schools not having the full complement of nine classes—a different distribution of the material for science may be permitted, provided that there is no ultimate reduction in the amount of work assigned to them. In the Oberrealschule, physics and chemistry are separated from the first.

(*b*) In the second stage, which is based on the first, the knowledge already acquired is broadened and extended. Here, too, experimental work is an important feature in the instruction; but in contradistinction to the lower stage, where it is rather qualitative, it is here quantitative. In addition, the chief laws are to be treated mathematically. The instruction in theoretical optics is to be confined to the most important phenomena (especially in such matters as polarisation and double refraction). With regard to mathematical geography and astronomy, the chief points are to be considered in the mathematical lesson, and the instruction in physics has only to supplement the knowledge already acquired. In this stage the material of instruction may be differently distributed between the classes, so long as the final aim is attained.

(*c*) The instruction in mineralogy is most naturally connected with chemistry. This does not preclude that in special circumstances—*e.g.*, in mining districts—special consideration may not be given to this branch. The chief crystalline forms and the physical and chemical properties of the chief minerals are to be studied, and at modern schools the elements of geognosy and geology besides.

It may be noted that swimming as an adjunct to gymnastics is to be kept steadily in view and to be encouraged wherever possible. (10) Physical exercises.

1. The recognition in principle of the equality of the three types of higher schools makes it possible to develop more thoroughly the peculiar character of each. (11) General remarks.

In order that the unmistakable progress which has been made in the economy of the instruction of the various branches since 1892 may be maintained and even carried still further, the headmasters must make greater efforts to secure that equally high demands are not made on the pupils in all branches of instruction, but that the most important, according to the character of the institution, are emphasised and extended. It is expected that the teachers of the different branches will duly observe this point of view by showing mutual consideration and the necessary self-restraint.

2. The combination of IIIB. with IIIA., and of IIB. with IIA. is to be avoided as far as possible. Their separation is unconditionally required :—

IIIB. from IIIA. in Gymnasien in Greek and Mathematics;
in Realgymnasien and Oberrealschulen in English, Mathematics and Science.

IIB. from IIA. in Gymnasien, in History and Geography, and in Mathematics;
in Realgymnasien and Oberrealschulen in History and Geography, Mathematics and Science.

In Realschulen all six classes must be kept distinct.

3. The Provinzial Schulkollegium is empowered :--

a. In bilingual districts to increase the instruction in German in vi. and v. by one hour a week, and to raise the number of hours for these classes to twenty-six.

b. In all modern schools to interchange the number of hours allotted to French and English, provided that such a departure seems justified by the position and business relations of the town where the school is situated, provided also that the attainment of the general aim in both branches is not permanently impaired thereby.

c. In Gymnasien to sanction all deviations from the normal curriculum (noted herein as permissible) with regard to the instruction in modern languages in the three top classes, but this, however, for the present, only with Ministerial consent, and after submitting a detailed justification of each separate case.

In their administrative reports the Provinzial Schulkollegien must mention all such deviations under A. and B., and state the cause which led thereto and the results of the changes. The introduction of alternative instruction to Greek in IIIB. to IIB., in a Gymnasium or Progymnasium needs Ministerial sanction.

[4. Former par. *re over-burdening.*]

[5. Regulations as to *Home Work.*]

6. In addition to the class exercises prescribed in the programmes of work and in the "Notes on Method," there should be set in the middle and upper classes, short essays on certain well-defined subjects of no wide range, which have already been treated of in the instruction, in German, in foreign languages, in history and geography, and in natural science. These essays are to be corrected by the teachers of the branches concerned, and special regard is to be paid to the suitability of the expression.

[7. Note on the educative function of the school.]

A. E. TWENTYMAN.

September, 1901.

HIGHER SCHOOLS FOR GIRLS IN GERMANY

An Introductory Sketch

Note

The proof-sheets of the following paper have been read by Herr Schulrath Dr. Lüngen, of Frankfurt a/M., and several corrections and alterations have been suggested by him. I wish to express my sincere thanks and sense of obligation to him for his kindness in undertaking such a task.

M. A. L.

HIGHER SCHOOLS FOR GIRLS IN GERMANY

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HIGHER SCHOOLS FOR GIRLS IN GERMANY

An Introductory Sketch *

"Die höhere Mädchenschule weiss sich mit den Volks- und mit den übrigen höheren Schulen darin eins, dass sie nicht eine Fach- oder Berufsschule sein will, sondern dass sie ihren Zöglingen diejenige allgemeine Bildung mitzugeben sich bemüht, durch die sie befähigt werden, sich auf die ihrer harrenden Aufgaben, und auf den für sie bestimmten Lebenslauf vorzubereiten.

Die Bestimmung der höheren Mädchenschule als einer deutschen: ein lebendiges Nationalbewusstsein, eine hohe Wertschätzung deutschen Wesens, und deutscher Sprache.

Denn nicht ein internationales Amphibium, das nirgend sich recht heimisch fühlt, sondern ein deutsches Mädchen, dass mit seinem ganzen Herzen in seiner Heimat wurzelt, soll aus der höheren Mädchenschule hervorgehen."—Dr. Sommer. *Die Entwickelung des höheren Mädchenschulwesens in Deutschland.*

I. Preface

To understand and sympathise with the organised system of Secondary education for girls in Germany, one must approach the subject with a perfectly unbiassed mind, remembering that the English ideal is far removed from the German ideal. Moreover, the present period is one of transition, of controversy,

* The following paper is based upon a personal inquiry into the system of public Secondary education for girls in Germany, made during a period of six months, from June to December, 1899. Representative public schools and training colleges in Berlin, Cologne, Coblenz, Hildesheim, Frankfort-on-the-Main, Darmstadt, Heidelberg, Carlsruhe, Eisenach, and Weimar were visited, in addition to private schools in Berlin, Frankfort, Bonn, and Heidelberg, while the heads, or members of the staff of important schools in Bremen, Brunswick, Hanover, Leipzig, Munich, Minden, Danzig, and elsewhere, were consulted either in person or by letter. The latest developments of Higher Education for women were studied in Berlin and Bonn especially. Frequent opportunities for private discussion of the subject of girls' education occurred. I had the honour of being invited to attend the meeting of the "Verein für das höhere Mädchenschulwesen," held at Hildesheim, in October. I wish to take this opportunity of expressing my sense of the extreme kindness and courtesy with which I was received in every institution which I visited, and by every authority whom I consulted. Especial thanks are due to Herr Hofrath Oberschulrath Dr. v. m Sallwürk, Herr Schulrath Dr. Lüngen, Herr Direktor Dr. Thorbecke, Herr Direktor Dr. Hamann, Herr Hofrath Dr. Ritter, Fräulein von Cotta Fräulein von Milde, Frl. Dr. Gernet, Herr Hofrath Dr. Löhlein, Herr Direktor Dr. Hessel, Herr Direktor Dr. Rehorn, Herr Direktor Dr. Landmann, Herr Direktor Dr. Horn, Herr Direktor Dr. Blumberger, Fräulein Müller, Herr Professor Dr. Rein, and many others, for much valuable help and advice. I wish to express my sincere obligation to the numerous Heads who were kind enough to send me copies of their "Jahresberichte" and full information with regard to their respective schools, in the States which circumstances prevented me from visiting. For want of time, it has not been possible to make use in this paper of all the material at my disposal, so I regard the following sketch as only an introduction to the subject, which in many parts will need to be supplemented later on.

of conflicting ideals, of slowly advancing reform, a period upon which it is impossible to pronounce a final judgment.

State regulation of Secondary education for girls is a comparatively new thing in Germany; it has not yet had time to develope, to take a permanent form. What the result ultimately may be, it is not easy to prophesy. That the present restrictions and limitations will be removed, and a more generous and larger culture authorised, may be hoped for in due time. There is no doubt that the present organisation of Higher Schools for Girls is perfect within certain limitations, and that a very admirable system of training for the great mass of the young feminine population has been devised. But it is in essentials the same for every child, no thought is taken of the exception, of the individual. Boys are much better off than girls in this respect. There are several different types of schools for the different types of boy. But for girls there is only one, with practically the same organisation and curriculum. The newer developments, the attempts to give girls a more liberal education, are only tolerated, not yet encouraged by the State. The Germans are slow to be convinced, are slow to take action. But when they have once made up their minds that certain reforms are necessary, then we may feel sure that those reforms will be carried through. Public attention is being called to the question of girls' education, and one frequently hears most enlightened opinions expressed concerning it. Different organisations and societies, not only of women, but of cultivated men, are devoting their best energies to its higher development. There is every reason, therefore, for taking a hopeful and sanguine view of the progress which is going on steadily, although slowly.

It will be seen that very striking reforms have been made in the last quarter of a century. A corresponding rate of progress, on more liberal lines, during the next twenty-five years, may reasonably be expected, especially if the attitude of the State becomes one of encouragement, rather than merely of tolerance, or non-interference.

The question of Higher education for women has been, and is still, a subject of keen controversy. Few doubt the capacity of women for Higher education, but whether it be for their real *good*, and, more important still, for the good of Germany, is debated. It must, therefore, be acknowledged that the present state of Higher education for women in Germany is not satisfactory, when it is compared with that of England and other countries. The following extract from a speech of Dr. Waetzoldt, published in the *Centralblatt* (the official organ of the Prussian Education Department) for 1895, may be taken as fairly representative of the opinion of the authorities who to so large an extent decide the destinies of the German girl:—"Let us not forget that the most pressing necessity is not found in Universities for women, nor in the participation of women in the scientific labours of the times, nor in the opening of higher professions for women, *but in the care and extensive education of the millions of girls—indeed, for the education of the mothers of the coming generation.* The graceful

structures of a higher education and the capstone of the edifice will remain insecure until they can rest upon the broad and secure foundation of a general education for the people. A State which neglects this, and promotes Higher education exclusively, works for show, and neglects the general weal of the people while it may satisfy the desires and claims of a noisy minority."*

The object of this paper is to give some account, however brief and incomplete, of the system of State regulated Secondary education for girls in Germany. To this will be added a short note on the latest development of school, the so-called 'Mädchengymnasium' (although it does not, strictly speaking, come under the heading of this paper), together with some information on the subject of the training of women teachers, and the State examinations which they are required to pass.

II. The Name

The name 'höhere Mädchenschule' has now a definite signification in Germany, and cannot be used in the vague sense of the corresponding term 'High School for Girls' in England. It connotes a clearly defined organisation and curriculum, and a teaching staff possessing certain qualifications, as we shall see later on. To show its exact position in the system of public education for girls in Germany the following explanation may be useful:—

There are three grades of schools for girls in Prussia.

(*a*) Volksschule (Elementary School).
(*b*) Mittelschule (Middle School).
(*c*) Höhere Mädchenschule (Higher School).

We are not at present concerned with the Elementary School, but the "Middle" school needs a word of explanation, as the same name is used in Baden in a different sense.

A Mittelschule in Prussia, as its name indicates, signifies a school occupying a "middle" position between, on the one hand the Volksschule, and, on the other, the höhere Mädchenschule. It is intended for children whose parents can pay a moderate fee. The staff has not quite the same qualifications as that of the Higher School, nor is the standard of work so advanced, although it is above that of the Volksschule. One modern language is obligatory, and the length of the school course does not exceed eight years. In Baden, however, a Mittelschule signifies something more. The whole educational system of Baden is classified as follows:—

(*a*) Volksschule (Elementary School) = Elementary.
(*b*) Mittelschule (Middle School) = Secondary.
(*c*) Hochschule (High School) = University.

In Baden the Higher Schools for girls, which comply with the conditions required, are *officially* recognised as being on the same footing as the secondary schools for boys, and all are

* Quoted from a translation in *German Higher Schools*, by J. E. Russell, Ph.D.

classed together as *Mittelschulen*. This is not yet the case in Prussia, although many other States have authorised the recognition of Higher Schools for girls as belonging to the system of secondary education.

It is worth remembering that the name 'Mädchenschule' is gradually taking the place of the older term 'Töchterschule,' which, it is hoped by many, will soon become obsolete. So in England people speak of a "girls' school," no longer of an "educational establishment for young ladies."

III. Historical Sketch

It would be impossible in the limits of this paper to enter into a detailed history of the origin and growth of public Secondary education for girls in Germany. A short sketch in outline of some of the most important movements is, however, necessary in order to understand its present condition.

Nearly all the public schools for girls in Germany have been founded during this century, and by far the larger number during the last thirty years. Previous to 1870 the state of secondary education for girls was, speaking generally, extremely unsatisfactory. Even in the public schools the standard was low; while in the private schools, of which a large number existed, the work was superficial and the teaching inadequate. Each went its own way independent of the others, there was no unity of plan, no organisation common to all. The state of girls' schools before the Franco-Prussian War is described as being "chaotic," while the attitude of the public towards them was one of perfect indifference.

Little or nothing had been done by the Government; such schools as there were owed their origin either to private enterprise, or to the energy and liberality of the municipal authorities of the towns. Reforms in every direction were urgently needed, This was recognised by the leaders of the 'Frauenbewegung': for when the 'Allgemeine Deutsche Frauenverein' was founded in 1865, the society devoted its chief attention to improving the state of education for girls. Thoughtful men and women have since then devoted themselves to the subject; and whether they had the same ideals of education, or differed in opinion as to how the ideals were to be realized, they have this in common, that they have all been animated by the same disinterested spirit, and by an ardent desire to insure for the younger generation that education which would be best fitted for their needs as future citizens of the great German Empire. The rapid growth of the national feeling of unity, of ardent patriotism, of love for German literature and history, as well as the increased prosperity of the country after the war, contributed largely to the sudden improvement and development of secondary education for girls, which dates from the early seventies.

The establishment of new schools went on rapidly in the towns. It was their pride to spare no expense in erecting suitable and spacious buildings, and in providing the best teaching they

could secure for their children. While the State was occupied with education for boys, the task of providing public secondary schools for girls was left almost wholly to the towns. They fulfilled their duty nobly. Before 1880 something like 130 new girls' schools had been founded and endowed. Heads of girls' schools began to meet and confer with each other on the best modes of teaching girls, to exchange programmes, to discuss the possibility of a curriculum common to all. Books were written on the subject, periodicals arose which were devoted to it. A fixed plan of studies began to be introduced, and a more clearly defined organisation. Subjects useless from the pedagogical standpoint were discarded from the school programmes; the teaching of two modern languages, French and English, became compulsory, and one of the distinguishing marks of a Higher School. This steady progress, on the whole, was taking place unaided, and practically unnoticed, by the State.

Still, for want of a central scheme of organisation, there was naturally lack of uniformity in the schools; each had to develop in its own way; each differed from the others in organisation and methods. Moreover, although a great improvement was taking place in both public and private schools, many of the latter were still far below the standard desired; they called themselves 'Higher' schools, although they in no sense deserved the title. Again, in spite of all that had been done, the great mass of public opinion was either indifferent or actually opposed to secondary education for girls. The schools seem to have had the heavy task imposed on them, not only of educating their pupils, but of attempting to educate public opinion.

There were only two ways of remedying the existing evils; either the State must interfere, or, failing that, the schools must help themselves. It cannot be said that the State appeared impressed by the urgency of the crisis, therefore to the schools was left the task of their own reform.

The year 1872 is an important date in the history of education for women in Germany, and marks a turning point. In that year a meeting of Head Masters, Head Mistresses, and teachers in girls' schools, public and private, was summoned at Weimar, to consider the question of reforms in the curriculum, teaching, and organisation of Secondary Schools for girls throughout Germany. It is true that some conferences between 'Directors' had already taken place, but these only represented the views of certain sections. Therefore the assembly at Weimar was the first fairly representative meeting of Heads of girls' schools which had ever been held in Germany. They met on September 30, 1872, on classic ground. There were 164 persons present, 110 men and 54 women. The most strongly-opposed interests, the most widely divergent opinions on girls' education were represented. There were Heads of public and private schools, large and small, fully equipped or defective; in fact, of practically every type of school for girls which existed then in Germany How were opinions and interests so diverse to be reconciled, how was order to be evolved from chaos?

The set business of the meeting was to discuss "suggestions on the subject of legal regulations as to the organisation and status of Higher Schools for Girls in Germany, in relation to the rest of Secondary Education and to the State control of the same."

Nine "theses" on this subject had been prepared, and after a very warm discussion were finally adopted. These theses really include all the essentials which distinguish the Secondary from the Elementary School. They dealt with organisation, curriculum, aim of the school, age of pupils, number of successive classes, composition of staff, qualifications required, the necessity that "Higher" Schools should be officially recognised as such, the advisability of having a curriculum for all schools, drawn up by a specially appointed committee; and finally they demanded that those schools, and *only* those, which conformed to the regulations prescribed should be entitled to call themselves 'höhere Mädchenschulen.'

The results of this meeting at Weimar at first seemed successful beyond the utmost hopes of its promoters. In 1873 the Prussian Minister of Education summoned a conference of specialists to discuss the subject more in detail, the result being that they practically confirmed all the resolutions passed at the Weimar meeting. Another meeting of Heads of schools was soon after held at Hanover, and then the society was formed which has since become so well known in Germany, the 'Deutsche Verein für das höhere Mädchenschulwesen.'*

To write the history of the Higher School for Girls since 1872 would be to record the history of the transactions of the Verein. With indefatigable energy and zeal, the members have devoted themselves to these objects: to fix a certain standard for the schools: to obtain unity of organisation: to gain official recognition of their status as Secondary Schools from the Government. There are branch societies in most parts of Germany, and every two years general meetings are held at some important centre of education, and at these meetings proposals are made and resolutions adopted which practically determine the position of Higher Schools for Girls in Germany. To each meeting, beside the members, representatives of the Education Department of each State in the German Empire are invited, and take part in the discussions. Not only Heads of schools, but assistant teachers of both sexes are eligible for membership. The affairs of the Verein are managed by a general Committee, consisting of representatives of each branch, and a special Committee chosen from this. Ladies take their full share in the business of the Verein, a certain number of them being members of the Committee. The programme for each meeting is drawn up by the Committee, which meets as often as is necessary for business. The importance of this association is fully recognised by the different Governments which send representatives to its meetings. Even those who are not in sympathy with the Verein acknowledge that its members have exhibited rare self-

* "The German Association for the Secondary Education of Girls."

devotion, and that its work is absolutely disinterested, having only one end in view—to develop the exterior and inner organisation of girls' schools upon the principles laid down at Weimar.

The struggle has been a very uphill one. The first gleam of hope of success and recognition was soon quenched. The Prussian Government of the early seventies, which had at first seemed so favourable to the Weimar theses, became absorbed in other business, and had no time to devote to secondary education for girls. The other German States at first waited to see what Prussia would do. But finding Prussia slow to move, they have led the way. The first important step was that secondary schools for girls should be classed no longer among the Elementary but among the Higher Schools, that is on the same footing as the secondary schools for boys.* This happened in Saxony in 1875 and 1876; Würtemberg in 1877; Baden, 1877; Hesse, 1874, 1876, and 1880; Brunswick in 1876. They had already gained recognition in Anhalt so long ago as 1850.

The position of women teachers in Higher Schools for Girls became a question which demanded urgent attention. The control of these schools, and all the teaching in the upper classes, were in the hands of men; women occupied a subordinate position, teaching only in the lower classes. A concerted effort was made in 1876 to improve their position, but without very satisfactory results. Even those men who warmly sympathised with them feared that the time had not yet come to grant what they desired. It was claimed that the imperfect education and training which they had received had not fitted them to teach in the upper classes. Moreover, many feared that the appointment of women to more responsible positions might further endanger the reputation of the schools, which were just emerging from a condition of chaos and mediocrity, and might prevent their recognition by the State as secondary schools, thereby retarding the whole progress of women's education. These counsels prevailed at the time, and no immediate improvement took place.

But, on the other hand, gradual reforms in the training of teachers were carried out, and by steady, resolute efforts, by strenuous study in leisure hours, the German women have shown by their actions, and not by words only, that they were not merely fitted by nature, but fully qualified by training and education, to occupy the position which they desired. Before many years had passed it was acknowledged that they were not only *desirable*, but *indispensable*, in the upper classes of the Higher Schools.

In the meantime the work of the Verein went on steadily. The members memorialised the Prussian Government again and again on the subject of the official status of the schools, but without much result. The internal organisation of the schools made steady progress year by year. Improvements of many kinds were introduced and better methods of teaching proposed.

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* Prussia and Bavaria are the only important States where this has not yet taken place.

In 1886, quite unexpectedly, the Education Department at Berlin showed signs of interest in secondary teaching for girls, and issued a 'Normal Lehrplan für die höheren Mädchenschulen in Berlin,' which was submitted to the Verein for discussion.

The Prussian Minister of Education attended the meeting, which was held in Berlin, and in a friendly speech invited criticism of his Lehrplan, and expressed his wish to do all he could for the education of girls. The Lehrplan, although in the main approved of by the Association, had one serious defect—it provided only for a nine years' course, instead of ten years, which experience had shown to be absolutely necessary. The Minister was unable to be present and hear the criticism of his Lehrplan, which was withdrawn soon afterwards.

The apparently hostile attitude of the Prussian Government towards Girls' Higher Schools may have been due to a certain anxiety lest the schools should go too far, and should endanger the ideal of feminine education. The Conservative party looked with disfavour on the vision of the emancipated woman. The other parties regarded the subject with indifference, if not dislike. Public opinion too often either ridiculed or ignored the existence of the Higher School for Girls. It would have been extremely difficult for a Government to pass through both Houses a measure to secure official recognition of girls' Secondary Schools in the same class with boys. And besides, the Government may have deemed that it was doing the schools a real service in allowing them to mature naturally, untrammelled by regulations. In reply to repeated petitions always came the answer—"Not yet; it is too soon; things are not ripe yet."

The meeting of the Verein für das höhere Mädchenschulwesen at Heidelberg in 1890 is memorable as showing the great advance which had been made by women teachers, and what excellent work was being done by them, and how important their position was becoming. A great change had taken place since former days. It was unanimously voted that women teachers were "indispensable" in the upper division of a Higher School. In consequence of this the Government was memorialised to establish a higher examination for women teachers, and lectures for them were soon after begun in Berlin and in Göttingen. The Verein also pressed on steadily for reform in the *Lehrerinnenprüfung* urging that the period of preparation should be at least three years, and that the candidates should be nineteen years old before presenting themselves for examination.

May 31, 1894, is a date not likely to be forgotten by anyone in Germany interested in the education of girls. On that date the Prussian Minister of Education issued the well-known "Bestimmungen über das Mädchenschulwesen, die Lehrerinnenbildung und die Lehrerinnenprüfungen, vom 31 Mai 1894,"* which caused so much excitement in the educational

* "Regulations for Girls' Schools, the Training and Examination of Women Teachers." This is commonly referred to as the "Maibestimmungen."

world, and which decides, for the present at any rate, the destinies of girls' schools in Prussia.

On the whole, the essentials for which the Verein had been working so many years were granted. For the first time there was an *official definition* of a Higher Girls' School:—It shall have (at least) seven graduated classes; the course shall last nine years; the staff shall consist of University men and trained teachers, both men and women; two foreign languages shall be taught. An official programme of work and a time table were subjoined. Schools which already had instituted a ten years' course were allowed to adhere to it. The age of candidates for the *Lehrerinnenprüfung* was raised to nineteen, and the regulations were more clearly defined. But, most important of all, was the instituting of the Higher Examination for Women Teachers, the passing of which would entitle them to teach in the upper division of a Public Higher School, and to rank as *Oberlehrerin*. It was required that the charge of one class in the *Oberstufe* should be assigned to a mistress, and that one of the senior mistresses should be selected to act as assistant to the Director when necessary.

While, on the whole, many people approved of these Regulations, great regret was felt at the reduction of the number of school years from ten to nine. The *schulpflichtig* age is fixed by law at the completion of the child's sixth year. It was considered a distinctly retrograde step if the age at which a girl's school education should cease was limited to fifteen instead of sixteen. Voluntary classes (*Selekta*) can hardly take the place of regular school work at that age. It was felt that the pupils by leaving school at fifteen would suffer serious injury from losing the year which was most important for their education.

Again, although the 'Higher School' for Girls was clearly enough defined by these Regulations, nothing was said to put it officially in the same category with the Higher School for Boys. And so the matter remains to this day. Some concessions have been made by the Government; a certain number of men teachers have received the title of Professor (as at Boys' Higher Schools); University Graduates who had been appointed as Directors were not required to undergo the *Rektorprüfung* hitherto demanded;* and some of the Higher Girls' Schools have been put under the same authority as the Higher Boys' Schools —the 'Provinzial Schulkollegium'†—thereby giving a kind of tacit recognition of their status. Nevertheless, an official statement of their exact position in the Kingdom of Prussia is still wanting, and this is, in some degree, an injury to the schools.‡

The condition of Secondary Education for girls at present offers a marked contrast to that of forty years ago. Then there was disunion, lack of a definite aim, programmes in many

* *Handbuch des höheren Mädchenschulwesens.* Dr. Wychgram, page 47.

† The organisation of the Central and Local Authorities for Secondary and Elementary Education in Germany is described in Mr. Field's paper, in this volume on "*The Smaller Public Elementary Schools of Prussia and Saxony.*" Section II.

‡ See *Appendix I.*, also § V. (d) below.

cases impossible or ludicrous, any number of classes, pretentious schemes, inefficient teaching. *Now* there is a fixed standard, a fixed curriculum, a fixed organisation: the teachers are civil servants, with assured salaries, and pensions in case of illness or old age. This satisfactory state of affairs is in large measure due to the unceasing labours of the leading members of the Verein für das höhere Mädchenschulwesen. They constitute a highly skilled body of specialists in education, without whose approval and support it would be difficult, if not impossible, to introduce and carry through any measure of vital importance affecting the future of education for girls in Germany.

IV. The Present Position of Secondary Education for Girls in Germany

According to the statistics furnished by Dr. Wunder in Wychgram's *Handbuch des höheren Mädchenschulwesens*, there are 196 public secondary schools for girls in Germany, with a Ten or a Nine Years' Course. (See accompanying tables for details).

All except six have been founded during this century. There are 128 in Prussia, 24 in North Germany (excluding Prussia), and 44 in South Germany.

It is characteristic of the attitude of the Prussian Government towards Secondary education for girls, that of these 128 schools only *four* have been founded by the State. These are the Elisabethschule and the Augustaschule at Berlin, the Luisenschule at Posen, and the Higher School for Girls at Trier, the last three having 'Königliche Seminare' in connection with them. All the remaining schools owe their origin to the energy and enterprise of the towns, or to special foundations.

There are two Royal schools in Bavaria, one at Ansbach, the other at Aschaffenburg, and in other States schools have been founded in some cases by the reigning monarch. Such are the Royal Schools at Stuttgart, the Sophienstift at Weimar, the Higher School at Neustrelitz. The 'Zabelsche Anstalt' at Gera is due to private munificence. In Anhalt all four higher schools are under State supervision. Thus it will be seen that out of a total of 196, only seventeen are directly due to the initiative of the State.

One hundred and twenty schools have adhered to the Ten Years' Course, while seventy-six conform to the Prussian Regulations and have a Nine Years' Course. According to Dr. Wunder's list,* fifty-three schools have a 'Seminar' attached to them, while twenty-four, at least, have classes for senior girls, attendance at which is optional. Sometimes these classes are called 'Selekta,' and are looked upon as a continuation of Class I. Other schools have 'Fortbildungskurse,' which are attended not only by young girls but by grown-up women. We hear also of courses of lectures in literary and scientific subjects being given in a Higher Girls School (for example, at Hanover I., Dir. Dr Wespy) during the winter months for the benefit of senior students.

* See note to following table.

It is impossible to obtain exact statistics of the number of teachers (men and women) and of pupils in these schools at the present time. In 1896 Dr. Wunder calculated that there were 1,551 men and 1,369 women teaching, and the total of pupils he puts at 57,918.†

Table of Public "höhere Mädchenschulen" in Germany, having either a Ten or a Nine Years' Course, and showing the number of Classes, Teachers, and Pupils; stating also the number of Schools which have *Seminare* or 'Continuation Classes,' in connection with them, in the year 1896.*

Prussia.	Schools.	Ten Years' Course.	Nine Years' Course.	Number of Classes.	Men Teachers.	Women Teachers.	Pupils.	With "Seminar" Attached.	With Continuation Classes.
Provinces.									
Ostpreussen	9	5	4	75	44	49	2,281	4	—
Westpreussen	7	5	2	71	55	48	2,028	6	—
Brandenburg	23	9	14	276	198	191	9,126	5	4
Pommern	6	4	2	61	37	45	1,717	2	—
Posen	4	3	1	41	34	28	1,105	2	—
Schlesien	9	2	7	85	65	51	2,197	3	3
Sachsen	19	6	13	198	132	123	5,550	3	2
Schleswig-Holstein	4	3	1	47	30	35	1,396	1	—
Hannover	13	5	8	123	91	81	3,514	4	4
Westfalen	8	7	1	64	55	49	1,929	3	—
Hessen-Nassau	9	5	4	122	99	61	3,628	3	3
Rhein-Provinz	17	17	—	180	112	131	4,842	4	—
Total	128	71	57	1,343	952	892	39,313	40	16
South Germany.									
Baiern	18	7	11	121	158	93	3,381	1	4
Württemberg	11	11	—	108	99	77	2,829	1	1
Baden	7	7	—	82	57	52	2,372	2	1
Hessen	5	5	—	71	64	40	2,259	1	—
Elsass-Lothringen	3	1	2	39	23	34	1,045	2	—
Total	44	31	13	421	401	296	11,886	7	6

* Condensed from the statistics given by Dr. E. Wunder in the "Handbuch des höheren Mädchenschulwesens," Dr. J. Wychgram.

† Dr. Wunder says that in 1896, in Prussia alone, there were some 160,000 boys in attendance at Public Secondary Schools

North Germany (excluding Prussia).	Schools.	Ten Years' Course.	Nine Years' Course.	Number of Classes.	Men Teachers.	Women Teachers.	Pupils.	With "Seminar" Attached.	With "Continuation" Classes.
Sachsen	2	2	—	31	32	12	800	—	1
Mecklenburg-Schwerin	2	2	—	19	8	15	289	1	—
Sachsen-Weimar	2	2	—	19	15	21	565	1	1
Mecklenburg-Strelitz	2	—	2	16	10	9	473	—	
Oldenburg	1	1	—	10	8	7	277	—	—
Braunschweig	2	2	—	30	20	19	774	1	—
Sachsen-Altenburg	1	1	—	10	7	4	220	—	
Sachsen-Gotha	2	—	2	21	14	13	496	—	—
Anhalt	4	4	—	42	37	27	1,203	1	—
Schwarzburg-Sondershausen	2	2	—	18	11	11	316	1	—
Reuss ä. L.	1	—	1	8	9	4	163	—	—
Reuss j. L.	1	—	1	9	9	4	315	—	—
Lippe-Detmold	1	1	—	9	2	7	170	—	—
Hansastädte	1	1	—	24	16	28	658	1	—
Total	24	18	6	266	198	181	6,719	6	2
Grand Total for Germany.									
Prussia	128	71	57	1,343	952	892	39,313	40	16
North Germany	24	18	6	266	198	181	6,719	6	2
South Germany	44	31	13	421	401	296	11,886	7	6
	196	120	76	2,030	1,551	1,369	57,918	53	24

At Easter, 1898, a "Seminar" was opened in connection with the Higher School for Girls at Minden (Direktor, Dr. Schlüter); and Easter, 1899, another at Leipzig (Direktor, Dr. Wychgram). These are not included in the above table.

The number of girls who attend public secondary schools, when compared with boys, is very small. Their education is still principally in the hands of private individuals. Those private schools which desire recognition as 'höhere Mädchenschulen' must comply with the same regulations, and, generally speaking, adopt the same organisation and curriculum as the public school. To be allowed to exist at all implies a certain

standard of merit, as no unqualified or unsuitable person can open a private school in Germany under any circumstances whatever.

Many of the best Higher Schools for Girls in Germany are private, the standard of work in them being so good that no interference by Government or Town Council is needed. Take for example Bremen, whose reputation as an educational centre is widely known, although there is no recognised public Higher School for Girls in the city. In Bonn, too, no public school is required, as the private schools supply every need. This must be the case in many towns, but the subject is one about which it seems impossible to obtain exact statistics, and which would offer an important field for special inquiry. The chief source of information for a foreigner is the *Statistisches Jahrbuch der höheren Schulen* (Teubner), which contains in a condensed form particulars about most of the Secondary Schools for boys and girls in Germany. But of five private schools which I visited in different cities, and with which I was favourably impressed, there was no mention whatever in this handbook. This proves that it does not furnish anything like a complete or accurate record of the private secondary schools.

While the best private schools conform to the general standard, they appear to have a more strongly marked individuality than is usually noticed in the great public schools, where one of the ideals is uniformity in methods, organisation, and curriculum. So far as I have had any opportunity of judging, many of the private schools are in the hands of women, and are largely staffed by women teachers, some of considerable ability. The fees are usually fixed according to a higher scale than is found in the public endowed schools, ranging, in some of the better schools, as high as £20 per annum. In some German States, private schools which satisfy all requirements receive aid from public funds.*

It is, of course, impossible for all private schools to reach the same high level; many, for reasons too numerous to relate, find it difficult to exceed the standard of the *Mittelschule*† and, it is said, only differ from it in teaching two foreign languages instead of one.

It is interesting to notice that the newest type of school for girls, the so-called 'Mädchengymnasium,' is the result of the combined efforts of private individuals, and is not a 'public' school in the same sense that the Higher School for Girls is.

The small private boarding-school, the Pensionnat, flourishes in Germany. Though these schools are largely frequented by foreign children, it is very much the habit of German parents to send their daughters after, or even before, they have completed the course in the Higher Schools, to one of these establishments, to be 'finished' in foreign languages, or taught such 'accomplishments' as are not included in the programme of the Higher School.

* See the article on *Privatschulen* in Prof. Rein's *Encyklopädisches Handbuch der Pädagogik.*

† See II. above.

The pupils also frequently learn cooking, and are trained in the management of a household.

This habit of German parents is often regretted by those who are interested in the education of girls, especially when the latter are removed early from school in order to be sent abroad. The study of the history, language, and literature of their own country is too often given up, or neglected, just when the pupil has reached the most impressionable age, and in this way an extremely valuable part of her education is lost.

It is quite impossible to give anything resembling an adequate account of private secondary schools within the limits of this article. A special paper might well be devoted to the subject. I can only hope to convey the impression that they are very numerous, and, in many cases, excellent, and that they occupy a very important place in the system of Secondary Education for Girls in Germany.

V. The Public Higher School for Girls.—(*a*) The Time Table.

The Official Prussian Time Table.

	—	Unterstufe (Lower Division).			Mittelstufe (Middle Division).			Oberstufe (Upper Division).			—
	Class	IX.	VIII.	VII.	VI.	V.	IV.	III.	II.	I.	Total.
1	Religious Instruction	3	3	3	3	3	3	2	2	2	24
2	German	10	9	8	5	5	5	4	4	4	54
3	French	—	—	—	5	5	5	4	4	4	27
4	English	—	—	—	—	—	—	4	4	4	12
5	Arithmetic	3	3	3	3	3	3	2	2	2	24
6	History	—	—	—	—	2	2	2	2	2	10
7	Geography	—	—	2	2	2	2	2	2	2	14
8	Natural Sciences	—		—	2	2	2	2	2	2	12
9	Drawing	—	—	—	—	2	2	2	2	2	10 (8)
10	Writing	—	3	2	2		—	—	—	—	7 (9)
11	Needlework	—	—	2	2	2	2	2	2	2	14
12	Singing	2	2	2	2	2	2	2	2	2	12 (18)
13	Gymnastics				2	2	2	2	2	2	18 (12)
	Total	18	20	22	28	30	30	30	30	30	238

The accompanying official Lehrplan, issued in Berlin in 1894, arranges the distribution of subjects, and the number of

lessons in each subject for a school course of nine years. In the case of schools which have already instituted a course lasting ten years, the work for the higher division is to be extended over a period of four instead of three years. The age at which a child enters school has been fixed at six years; in schools with a nine years' course, she leaves at 15, in those with a ten years' course at 16.

Let it be remembered what are the distinguishing characteristics of a fully-equipped Higher School for Girls:—(*a*) It has, at least, a nine years course; (*b*) this course is in three divisions (Unter- Mittel- and Oberstufe); (*c*) two Modern Languages are compulsory, of which French is begun in the fourth school year, and English in the seventh; (*d*) the Staff must consist of a certain number of duly qualified men and women teachers.

The subjects of instruction are:—Religion, German, French, English, Arithmetic, History, Geography, Natural Sciences, Drawing, Writing, Needlework, Singing, Gymnastics.

While the main characteristics are the same everywhere, there are certain variations, due to local needs or the arrangement of the staff.

To illustrate these variations I reproduce the time tables of four representative schools, with a number of pupils ranging from 500 to 800.

A. A Nine-Class Prussian school, with Seminar attached.
B. A Ten-Class Prussian school, with Seminar attached.
C. A Ten-Class Baden school, with Selekta, and with Seminar attached.
D. A Ten-Class Saxon school, without Seminar.

A comparison with the official Time Table will show that *A* corresponds with it exactly. So does *B*, but in *C* we find differences. We note that more time is given to Modern Languages, and, in the Upper Division, to German. Great stress is laid upon Gymnastics and Needlework in the Lower Division. Drawing is begun a year earlier. Physical Geography is a separate subject. I shall refer to the time table for the Seminar later on. *C* has its own characteristics. No Gymnastics or Needlework in the first year, a great deal of time for Writing. less time for German than in Prussian schools, less time for English; French is much the same.

It will be noticed that most of the classes in these schools are in two divisions, *a* and *b*, and in one case in three, *a*, *b*, and *c*. These divisions are parallel, and the same work is done in each.

A.—Time Table of a Nine-class Higher Girls' School in Prussia, with Seminar Attached.

		Seminar.				Upper Division.						Middle Division.						Lower Division.						Total.
	Classes	I.	II.	III^{a}.	III^{b}.	I^{a}.	I^{b}.	II^{a}.	II^{b}.	III^{a}.	III^{b}.	IV^{a}.	IV^{b}.	V^{a}.	V^{b}.	VI^{a}.	VI^{b}.	VII^{a}.	VII^{b}.	VIII^{a}.	VIII^{b}.	IX^{a}.	IX^{b}.	
1	Religious Instruction	2	2	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	54
2	Pedagogy	6	2	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12
3	German	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	8	8	9	9	10	10	124
4	French	5	5	5	5	4	4	4	4	4	4	5	5	5	5	5	5	—	—	—	—	—	—	74
5	English	5	5	5	5	4	4	4	4	4	4	—	—	—	—	—	—	—	—	—	—	—	—	44
6	Arithmetic	2	2	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	54
7	History	2	2	3	3	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—	—	—	30
8	Geography	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	32
9	Natural History	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—	32
10	Drawing	—	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—	—	—	26
11	Writing	½	½	—	—	—	—	—	—	—	—	—	—	—	—	2	2	2	2	3	3	—	—	15
12	Needlework	—	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	31
13	Singing	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—	23
14	Gymnastics	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	40
	Total	32½	32½	30	30	30	30	30	30	30	30	30	30	30	30	28	28	22	22	20	20	18	18	591

B.—Time Table of a Ten-class Higher Girls' School in Prussia, with Seminar Attached.

		Lower Division.			Middle Division.			Upper Division.				—	Seminar.		
	Classes	X.	IX.	VIII.	VII	VI.	V.	IV.	III.	II.	I.	—	III.	II.	I.
1	Religious Instruction (a) Catholic	3	3	3	3	3	3	2	2	2	2	26	2	2	2
	Religious Instruction (b) Lutheran	3	3	3	3	3	3	2	2	2	2	20	2	2	2
	Religious Instruction (c) Jewish	—	—	—	2	2	2	2	2	2	2	6	1	1	1
2	German	10	9	8	5	5	5	4	4	4	4	58	3	3	3
3	French	—	—	—	5	5	5	4	4	4	4	31	4	4	4
4	English	—	—	—	—	—	—	4	4	4	4	16	4	4	4
5	Arithmetic and Geometry	3	3	3	3	3	3	2	2	2	2	26	2	2	2
6	History	—	—	—	—	2	2	2	2	2	2	12	2	2	2
7	Geography	—	—	2	2	2	2	2	2	2	2	16	1	1	1
8	Natural Science	—	—	—	2	2	2	2	2	2	2	14	2	2	2
9	Drawing	—	—	—	—	1	2	2	2	2	2	11	2	2	1
10	Writing	—	3	2	2	1	—	—	—	—	—	—	1	—	—
11	Needlework	—	—	2	2	2	2	2	2	2	2	16	2	1	1
12	Singing	1	1	1	2	2	2	2	2	1	1	16	1	1	—
13	Gymnastics	1	1	1	2	2	2	2	2	2	2	17	1	1	1
14	Pedagogy	—	—	—	—	—	—	—	—	—	—	—	2	3	5
	Total	18	20	22	28	30	30	30	30	30	30	285	32	31	31

C.—Time Table of a Ten-class Higher Girls' School in Baden, with Selekta, and Seminar Attached.

		Lower Division.			Middle Division.						Upper Division.								Seminar.		
	Classes	x.	ix.	viii.	vii.a	vii.b	vi.a	vi.b	v.a	v.b	iv.a	iv.b	iii.a	iii.b	ii.a	ii.b	i.	Selekta	iii.	ii.	i.
1	Religious Instruction	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	2	2	1
2	German	7	6	6	6	6	6	6	5	5	6	6	4	4	5	5	5	2	4	4	4
3	French	—	—	—	6	6	6	6	5	5	5	5	5	5	5	5	4	2	3	3	7
4	English	—	—	—	—	—	—	—	—	—	—	—	4	4	5	5	5	2	2	2	6
5	History	—	—	—	—	—	—	—	2	2	2	2	2	2	2	2	2	2	2	2	—
6	Geography	—	—	2	2	2	2	2	2	2	2	2	1	1	1	1	1	—	2	2	—
7	Arithmetic	5	5	4	3	3	3	3	3	3	3	3	3	3	2	2	2	—	3	3	—
8	Natural Sciences	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	2	—	3	3	—
9	Writing	—	3	3	2	2	2	2	1	1	—	—	—	—	—	—	—	—	1	1	—
10	Drawing	—	—	—	1	1	2	2	2	2	2	2	2	2	2	2	2	—	2	2	2
11	Singing	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	—	1	1	1
12	Needlework	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	—
13	Gymnastics	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	1	1	—
14	Pedagogy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	5	—
15	Shorthand	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1	—
16	Physical Geography	—	—	—	1	1	1	1	2	2	2	2	2	2	—	—	—	—	3	3	—
	Total	20	22	24	30	30	31	31	31	31	30	30	31	31	31	31	30 (31)	13	31 (33)	34 (35)	21 (23)

D.—Time Table of Ten-Class Higher Girls' School in Saxony.

—	Upper Division.								Middle Division.						Lower Division.			—
Classes	i.	ii.a	ii.b	ii.c	iii.a	iii.b	iv.a	iv.b	v.a	v.b	vi.a	vi.b	vii.a	vii.b	viii.	ix.	x.	Total.
1. Religious Instruction	2	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	42
2. German	4	4	4	4	4	4	4	4	4	4	4	4	6	6	8	8	8	84
3. French	5	5	5	5	5	5	4	4	5	5	4	4	4	4	—	—	—	64
4. English	4	4	4	4	4	4	3	3	—	—	—	—	—	—	—	—	—	30
5. History	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	24
6. Geography	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	—	28
7. Natural History	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	—	28
8. Arithmetic	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	4	4	48
9. Writing	—	—	—	—	—	—	—	—	1	1	2	2	3	3	4	4	4	24
10. Drawing	2	2	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	24
11. Singing	1	1	1	1	1	1	2	2	2	2	2	2	2	2	—	—	—	22
12. Drill	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	—	28
13. Needlework	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	—	32
Total	30	30	30	30	30	30	30	30	30	30	30	30	28	28	24	22	18	475

V. (*b*) The Curriculum

Religious Instruction is a compulsory subject in all German schools, and very great importance is attributed to it. Special teaching is provided for children of each different faith—for Evangelical, Roman Catholic, and Jewish. The aim of the instruction is clearly stated, "To bring up young people in the knowledge of God's Word; to instruct them in Holy Scripture, and to train them so that they may set a good example, may share in the religious work of the community to which they belong, and, in general, may fulfil every pious duty which falls to their lot in life." The work is carefully distributed over the whole school course, and is widely comprehensive in its nature. When possible it is arranged that the lesson in Religious Knowledge shall be given in the first morning hour. The instruction is generally given by members of the staff, but in some cases specially qualified external teachers are appointed for the purpose.

The German Language and Literature, naturally, occupy the most prominent place in the Lehrplan. Even before the establishment of public Secondary Schools for Girls, it had been acknowledged that "that most priceless possession of a nation—its own individuality in the noblest and highest sense—is best represented in its language and its literature, and that the first duty of a German school—as German—is to foster an ardent spirit of true patriotism in the young."

The Lehrziel, as defined in the Regulations for teaching German in different States, is expressed in somewhat different terms, but there are certain characteristics common to them all, which may be briefly summed up as follows:—

The aim of teaching German is

(*a*) That the children may learn to speak and to write their own language with correctness, clearness, and fluency, and free from traces of dialect.

(*b*) That they may become familiar with the chief examples of the best German literature, and with the lives of some of the greatest writers.

(*c*) That patriotism may be fostered by study of German heroic poetry and legends.

It is no wonder, therefore, that the teaching of a subject of such extreme importance should be of a very high order. The best methods are used, the result of long and careful inquiry. Very great demands are made upon the teachers, who are always among the best in the school.

From the beginning children are taught to speak clearly, to answer directly and concisely, in correct language. Very great importance is attached to reading aloud well, and the methods used in teaching have most successful results. I have heard girls of fifteen read a difficult poem of Schiller, so that to listen to them was a pleasure. Distinct enunciation and appropriate

emphasis are carefully taught. The girls first learn to understand what they read, with the result that their reading is not dull and mechanical, but intelligent, pleasant, and audible.

"Chorlesen" (reading in chorus) is brought to a remarkable pitch of perfection in many schools. It affords admirable training in every way, but is especially valuable in a large class, as it enables each member to take an active part in the lesson. It is particularly useful in language teaching. A good teacher, with a keen ear, is quick to detect the slightest inaccuracy, or want of precision, and the child who hopes that her deficiencies may be concealed by the voices of the others is soon undeceived.

The teaching of Phonetics as applied to German is very interesting, and provides a most valuable 'voice training.' I had the pleasure of hearing an excellent lesson in the Elisabethenschule in Frankfurt, where some thirty-eight little girls were diligently practising sounds from Vietor's *Lauttafel*, to their own great satisfaction. Far from being dull or uninteresting—a lesson has been seldom heard by me which the class seemed to enjoy more. These lessons are intended to remedy peculiarities of Frankfurt pronunciation, and the sounds which presented special difficulties to young Frankfurters were most practised, singly and in chorus. The children were quite free from self-consciousness, and threw themselves into their task with great energy. When a fault occurred, reference was immediately made to the *Lauttafel*, and it rarely happened that one child could not correct the mistake made by another. Verses and sentences introducing the difficult sounds were repeated, and the lesson closed with a recitation of a poem, with an admirable accent and appropriate expression.

The programme of literature in girls' schools varies a good deal, but, of course, most prominence is given to Schiller and Goethe. Lessing, too, is very much read, and I have heard excellent lessons on Uhland's ballads, and many on portions of the Nibelungenlied. A great deal of poetry is learned by heart throughout the whole school course, varied, naturally, to suit the age and ability of the pupils. Many of the older girls show a remarkable power of committing long passages to memory with great ease, and of reciting them admirably.

In most schools girls are not allowed to take notes of lessons. They listen attentively, and gain the habit of concentrating their attention so that they can reproduce at the next lesson what they have been told by the teacher.

Prosody is taught in connection with literature lessons in the senior classes, in some schools. A careful study is made of the different measures which the girls meet with in their reading, and they learn to scan the most important passages. I have heard many lessons in German Literature which might be regarded as models of the best methods of teaching this most difficult subject. The girls are taught to understand a poem, to grasp its inner meaning, to appreciate its felicity and charm of expression, and, above all, to enjoy it. It was interesting to notice how with a really good teacher, a difficult abstract poem of Schiller's was

so brought within the girls' reach, as it were, that its meaning and beauty were plain to all. It is the sacred duty of the teacher of literature to foster in his pupils a genuine love for and admiration of the subject. It is held to be among the most important means of education for girls, from the ethical and from the patriotic point of view. Not only are they to learn to know what is best and noblest in the literature of their country, but they are also to become familiar with the great writers, their personality and character.

A lesson dealing with Schiller's life will best illustrate the method of teaching this part of the subject. After the usual preliminary questions on the former lesson, the teacher began in a quiet, but most vivid and dramatic manner, to narrate the story of Schiller's flight to Mannheim, his adventures there, his hopes, fears, disappointments. His journey thence on foot to Frankfurt was traced on the map, with vivid local colouring—his weariness and depression, his humble lodging in Frankfurt, his departure for Meiningen, and the dreary winter spent there, were described with sympathy and insight. To the girls Schiller was a real human being; they sympathised with his hopes and fears; his friends were their friends, his enemies, theirs. This is but a very meagre description of a lesson which was a masterpiece of its kind.

It is hardly necessary to say that a German teacher of Literature does not use a 'text-book' in class, or refer to notes of any kind. A copy of the poem or play being studied lies open on the desk, but it is seldom referred to. The lessons are so carefully prepared that the teacher is able to give his undivided attention to the class, he speaks to them face to face, their eyes follow him, he is the point in the class-room upon which all attention is centred. This is such a striking characteristic of the good teacher that it is possible to judge of his powers before he has spoken a word, merely by watching the faces of the children. If when a teacher enters a room all eyes turn upon him, all attention is concentrated on him, if the expression of the children's faces is interested, expectant, eager, then we know we may expect a good lesson. But when a teacher is received with indifferent looks, even an appearance of boredom, we know that the children's former experiences do not cause them to anticipate the lesson with any special pleasure. Their estimate is usually right. This is quite apart from the question of discipline. Many poor teachers are very strict 'disciplinarians,' and the class behave in an exemplary manner during their lessons. But the good teacher has not to *think* of discipline—"Das versteht sich von selbst."

Higher Schools for Girls in Germany are remarkable for the very high standard of excellence not only in teaching German, but also in teaching other MODERN LANGUAGES. So much has been written upon this subject that it is needless for me to add anything. I need but confirm the praise of others. No written description can give any idea of the admirable work being done in some schools.

But—and it is a very important but—in the Reformed Methods of teaching modern languages, *all* depends upon the teacher. Moreover, even the very best and most successful teachers feel the strain severely, and cannot at all times maintain the same high level. When we consider the qualifications required to make a good teacher according to the Reformed Methods, one wonders how they are ever found combined in one person. To begin with, the teacher must be familiar not only with the language taught, but the country where it is spoken; must, in addition, speak with a good accent, and write and read the language with fluency, ease, and correctness. A special study of phonetics and the modes of teaching must have been made. For the lesson itself, in addition to the general qualifications of a good teacher, there must be found untiring energy, resource, vivacity, a keen ear to detect the slightest error, a power of varying the lessons, enthusiasm and thorough belief in the methods employed.

What is loosely designated as the 'Neue Methode' is really found in three different varieties, which, although they have some points in common, have each their own distinguishing characteristics. They are described as *(a)* the modified synthetic method, *(b)* the direct analytic method, which is also imitative, *(c)* the *Anschauungsmethode.* These all agree in making the reading exercise the central point of the lesson, and in teaching grammar inductively from it. The first attaches importance to the frequent practice of grammatical forms, and will not abandon the use of single sentences, and of passages for translation into the foreign tongue. In the second, pronunciation is taught from the beginning according to phonetic principles, and the foreign language is always used. There is practically no translation of German into French. The object is to learn French as a French child would learn it. The third is much the same as the second, but attaches more importance to the use of pictures and actual objects. By this means the language is made more real and living to the children.*

These methods are too well known now to need any detailed description. Only those who have seen them in practice can realise what a revolution is taking place in the teaching of Modern Languages in Germany, and how obsolete the usual English methods appear by contrast. The results are wonderful, and have been praised by everyone who has had any experience of them. I have heard lessons in different parts of Germany, illustrating each of these systems.

The standard of French in the upper classes in the best schools is high. Girls of fourteen or fifteen, who, as members of large classes have learned French in school only, can, as a rule, speak intelligently in French about the books they are reading, they have a good knowledge of French grammar, and

* See Miss Brebner's paper, the "Teaching of Modern Languages in Germany," and Mr. Fabian Ware's "Teaching of Modern Languages in Frankfurt a/M.," in Vol. III. of these "Special Reports" for further details on this subject.

they can write original essays in French which would do credit to much older girls. The accent and pronunciation of children who have been taught by the Reformed Methods are beyond any comparison better than is usual in the case of an English school-girl of the same age. The average of the work, on the whole, is much higher.

A great deal of attention is bestowed on learning French songs and poetry by heart. The singing and recitation of these in class is often a very charming performance.

It has been urged as an objection to the Reformed Methods that grammar is not thoroughly taught. So far is this from being the case, that I was surprised at the good knowledge of grammar possessed by children who had been learning a comparatively short time.

The teaching of English is equally good, only, since a shorter time is given to it (it is not begun till the seventh school year), the standard reached is not usually as high as in French. Two interesting lessons in English to classes who were just beginning stand out in my recollection. In one the subject was the class-room, its furniture, and the class themselves, and the girls took an active part in the lesson. One child was called forward, and questioned the others on the room and school life, furniture, books, and so on. The rest of the class answered exactly as if she was the teacher. To illustrate the English rules for the comparison of adjectives, two little girls were taken. Their respective heights, ages, and so on were 'compared' and discussed, only English being spoken. The lesson was taken very seriously, and I could see that the grammar portion of it was thoroughly understood by the children, and made a deep impression on them.

Another lesson, also to beginners, dealt with London life. Pictures of streets, the parks, river, public buildings, of people, vehicles, and so on, were looked at and discussed. Then a magazine article, with pictures of toys, many of which the children recognised, was talked over in detail. There was practically no grammar in this lesson, but the children learned many new words and sentences, and had much practice in pronunciation and English locutions. Both lessons were admirable of their kind, a marvellous amount having been accomplished in a very short time.

The Germans may well be proud of the Reformed Methods of teaching modern languages. They afford not only excellent mental discipline, but the practical results achieved are remarkable, and must be seen and heard in order to be appreciated.

The next important 'ingredient' in a German girl's education is HISTORY. For this the *Lehrziel* is "that she shall become familiar with the history of her native country, and have some knowledge of the most important events in Ancient and Modern History, so far as it has any bearing upon German History. The teacher is to strengthen and deepen by every means in his power

her love for her native country, her home, and the Rulers of the German nation; to train her so that she may understand and sympathise with life in the present day, and the tasks imposed upon her fellow-countrymen." Certain restrictions are imposed by the Government regulations on the teacher of History to girls. He is not to introduce obstruse political questions, or to give detailed accounts of wars and battles. It is desirable to arouse a warm personal interest in the great men of action, their deeds, and their lives. The *Lehrziel* of history for girls is different from that for boys. A long course is prescribed, but as it is really only done in outline, the effect of many of the lessons which I heard was disappointing, and did not come up to the expectations which I had formed. There was too much of a dry summary, too many dates, the periods to be covered were too wide. It seemed as if the work must be purely memory work. But in four instances my expectations of excellent teaching of History in Germany were fully realised. These exceptions showed that even within the prescribed limitations, work of very high order can be done. Of these teachers one was a lady, an *Oberlehrerin*, two were Directors of schools, and the other a Professor. All were quite different in style, but all four lessons were excellent.

A variation from the stereotyped methods of teaching history is found in the 'Regressive Methode,' which is used most successfully at Coblenz Higher School for Girls in the first year's History course.

Instead of beginning by teaching children ancient history or legends, Germany in the present day forms the subject of the first lessons. Here is the course for the three terms:—

1st term.—Our Emperor and his House. The War of 1870.

2nd term.—The French Revolution. Napoleon. The War of Liberation.

3rd term.—The Thirty Years' War. The Great Election. The Rise of the Prussian Monarchy.

No text-book is used; the teacher relates the story in an interesting manner, and at the next lesson the children repeat what she has told them. The children are very much interested, and altogether the system seems to have most satisfactory results.*

It is perhaps worth mentioning that in teaching history large historical wall maps of unvarying excellence are used at every stage, and on every occasion, and that in the senior classes in many schools the teaching of history and geography to a large extent goes hand in hand.

It is well known that the teaching of GEOGRAPHY in German schools is excellent. Whatever the particular method adopted the work is good. In the early stages, especially

* I am indebted to the courtesy of Herr Direktor Dr. Hessel and to Frl. A. Linck for the above details.

when studying *Heimatkunde*, drawing (or the Constructive Method) is thought best. The child sees the map growing on the blackboard and copies it. Talking and drawing are combined, but drawing is the chief means of teaching. The amount of drawing, however, to be done by the child has been limited by the Prussian Regulations, so as soon as the first difficulties are overcome, the wall map comes into use, and is the chief vehicle for instruction henceforward, drawing being only an auxiliary, of which the teacher makes use when he wishes. Relief maps are largely used, and in the more advanced stages, when Physical and Mathematical Geography are being studied, there are bountiful supplies of the best possible maps, charts, and appliances for the purpose. No text-book is, of course, used in teaching the junior classes. It is permissible to use one from the 5th class upwards, but I do not recollect having ever seen one. The map is considered the chief instrument for teaching, a book is only of minor importance.

Opinions seem to differ as to the best method in which Geography should be taught: whether *synthetic* (*i.e.*, beginning with what is most familiar, gradually extending the child's knowledge to other countries), or *analytic* (*i.e.*, beginning with the geography of the earth, taking it in parts, and coming down to the native land of the pupil last), or *concentric*. A combination of the two first methods is found to produce the most satisfactory results.

The work done in ARITHMETIC by girls is not so advanced as that done by boys. Again we find a certain amount of restrictions imposed by the official Regulation for teaching the subject. It is considered desirable that girls should have a good knowledge of Commercial Arithmetic (of whatever, in fact, would prove most useful to them afterwards in ordinary life), and that they should be carefully trained in Mental Arithmetic. But it is not supposed that anything more is necessary for them, or that even the beginnings of higher mathematics would be desirable.

So far as it goes, however, Arithmetic is admirably taught in girls' schools. The children calculate with remarkable quickness and accuracy, and understand their work most thoroughly. Very little home work is given in comparison with English schools. Most of the work is done in class, and far more of it is oral than written. If new work is taken, all difficulties are explained away by the teacher before the pupil begins; she is never left to puzzle over it alone. That would be quite opposed to the spirit of German teaching.*

DRAWING is not begun until the fifth school year, and then two hours a week are usually given to it. The *Lehrziel* is as follows:—"To train the pupil to judge accurately of size and direction in plain figures, and simple solid objects. To enable her to reproduce and alter certain given symmetrical figures,

* See Appendix III., for note on Science Teaching.

especially plaster ornaments. To form a correct estimate of the outline and shading of simple solid objects." The work is not of a very interesting nature, and it cannot be said that the educational value of the subject is looked at from quite the same standpoint as in English schools. Still, extremely good work of its kind is often done; at one school especially I saw a most interesting collection of drawings and paintings by the pupils, many of which had great merit.

NEEDLEWORK is considered indispensable for girls, and is compulsory throughout the school. The children are very carefully taught, and learn to stitch and make plain garments with extreme neatness. Two hours a week are given to it throughour, in most schools. It is always designated as HANDARBEIT.

The GYMNASIUM (*Turnhalle*) is an important department of every fully equipped school. The younger children are taught very simple exercises, combined with singing and games, but the work grows more difficult afterwards, and some good gymnastic exercises are included in the programme. While the gymnasium itself and apparatus are superior to what are usually found in an English High School, the methods of teaching and the exercises do not seem quite so admirable, either for the purpose of physical training, or from the educational point of view. In most schools the girls wear their ordinary dress instead of a more suitable gymnastic costume. There are, however, some exceptions to this rule, for example, the Higher School at Unterbarmen. The subject is generally taught by a fully qualified mistress, who also wears her usual dress.

An effort is being made to introduce a system of outdoor games into some girls' schools. Mistresses are being especially trained for the purpose, and certain afternoons are set apart when the children meet for games, attendance being voluntary. I was given an opportunity of being present at one of these *Spielstunden*, when some 150 girls played games in groups under the supervision of mistresses. Skipping, 'Schlagball' and a game played with rings and sticks, seemed most popular with the older girls, the little ones playing ordinary children's games. This was in the school play-ground, but in summer the children are sometimes taken out to the woods, where they have more scope for their energy. Many schools have acquired the use of fields, or grounds of some kind, where the children go on appointed afternoons. All this marks a great advance on the opinions of even a few years ago. But there is nothing in Germany, as yet, to compare with the well-organised games club of an English girls' school, nor does the value of 'combined' games seem to be fully appreciated by Germans. Much more attention is being paid to the health of school-girls now than formerly, and in order to counteract the effects of overwork, they are often encouraged by their teachers to take walks, cycle, skate, and play tennis if possible. Only those who know how little

importance was attributed to physical exercises for girls a few years ago can appreciate how remarkable a revolution is taking place at present.

V. (*c*) The Organisation

The present organisation of the fully equipped Higher School for Girls is very clearly defined. In the majority the programme of studies is arranged to cover a period of ten years. Many of those whose compulsory course is for only nine years have an extra optional class for girls who have completed the full course. The number of the Staff is determined by the size of the school; so many pupils, so many teachers.

In Prussia the limit of school hours per week is fixed at thirty. It is not expected that any teacher shall teach for the full number of hours; on the contrary, no one can be required to give more than a certain number of lessons per week, varying according to subject and class from twenty to twenty-six, the latter number being seldom exceeded.

The size of the classes varies somewhat. The outside legal limit is forty, but it is unusual to find so large a class. When necessary, parallel divisions are formed. In some of the larger schools the classes work in two, or even three, parallel divisions, the standard of work in each being the same. All subjects taught in each class are compulsory.

The order in which the lessons are given is carefully planned, so as to ensure as much variety as possible in the morning's work. Although according to the Prussian Regulations the number of lessons for each class each week is fixed, the arrangement of the hours for lessons may differ. Many schools have all the lessons during morning hours (eight to one o'clock, or, in summer, from seven to twelve o'clock), while others prefer to divide the work so that a portion of it will be left until the afternoon. This is the rule in Baden, for example, where the weekly number of lessons is, however, somewhat larger than in Prussia. There is no weekly holiday, but certain afternoons are always free, and where there are longer morning hours, all afternoons are free. The arrangements for vacation differ in different parts of Germany, according as the summer vacation falls in July, or later. In the former case there is generally an additional fortnight in autumn. The total vacation in the year is from ten to eleven weeks.

The school year in Prussia and North and Central Germany begins at Easter, when new pupils are received. In Baden, Bavaria, Alsace-Lorraine, and Würtemberg, September is the first month of the school year.

The length of a lesson is usually fifty minutes, sometimes only forty-five. At the end of each lesson there is a *Pause* of ten minutes, during which the children leave the class rooms, and in fine weather go out of doors to play. No work of any

kind is allowed during the *Pausen.* At the end of the second morning lesson there is an interval of at least fifteen minutes, and if there are five lessons in the morning, there is a pause of the same length after the fourth lesson. Therefore, if a child has spent five morning hours in school, about fifty minutes of that time will have been given up to recreation.

The hours of preparation are also regulated by law, so that children shall not be overworked. For the *Unterstufe,* at most, one hour; for the *Mittelstufe,* one and a half hours; and for the *Oberstufe* two hours a day is the limit assigned. The Staff of each school are required to see that these limits are not exceeded.

The beginning of the school year is not only the time for the entrance of new pupils, but also for promotion from class to class. The work of each class is arranged for one year, and it is expected that the task appointed will be accomplished by each member of it during that time. If a girl is not pronounced ready for promotion, she must remain a second year in the same class.

Each pupil has her own *Zeugnissheft* (Report Book), in which a record of her work and conduct during the term is kept. This is duly filled up by the teachers at the end of term and sent to the parents for their inspection and signature. It is brought back to school at the beginning of next term, and is kept in the archives.

There are practically no 'punishments' in a girls' school in Germany. The system of discipline is in some respects strict, and the teachers are usually quite equal to the task of enforcing good conduct and good work without a fear of penalties to aid them. In extreme cases, however, a girl may be 'kept in' for a certain time, under the supervision of some authorised person. The parents must be informed beforehand of the intended punishment, and under no circumstances can a child be 'kept in' during the mid-day period between morning and afternoon school.

Written impositions, or lessons of any kind as a punishment, are strictly forbidden. Nor can holiday tasks be imposed. Limitations are also fixed not only as to the amount of time to be given to home work, but as to the nature of work set. For example, drawing of maps, or drawing of any kind, is not permitted. The memory work is very carefully arranged, in order that the memory may be trained, while in no way overburdened. Essays on literary subjects must not exceed a given length, duly appointed by the teacher.

There are no examinations, as understood in England, in German girls' schools. The yearly promotion from class to class is determined upon by the Staff in conclave, where the work and ability of each pupil is minutely discussed. In some States, but not in Prussia, we hear of a 'public' examination which is held in spring, in the presence of the parents, where the children are questioned orally by the school Inspector or teachers, but I am not aware that much importance is attached to this.

There is nothing in the nature of a 'leaving examination,' no definite goal to be attained in the girls' school. The absence of such external stimulus renders the task of the teacher still more difficult. All secondary schools for boys have their 'leaving examinations,' the passing of which entitles the pupil to certain privileges, and opens up the way to his future career. But girls cannot serve in the army, they do not want to qualify for public appointments, therefore, it is argued, there is no object in having a 'leaving examination' for them. All depends on the personality of the teacher. It is needless to say there is no system of 'marks' or prizes in a German school, nor is it deemed desirable or necessary to encourage a spirit of rivalry or competition of any kind among the pupils. To do this would be opposed to the whole spirit of German education. *The work is for work's sake, for the honour of it, for the pleasure of it, not for hope of incidental recompense.* To associate artificial prizes or rewards with education in a child's mind would be to degrade the noble ideal.

A record of the work done in each class is kept in the Class Book. This contains the printed form for each day, ruled in columns, under the headings:—

Hour; Absent; Late; Subject; Teacher; Work given up; Work accomplished; Work for next lesson.

This is carefully filled in and signed by each teacher after each lesson, and presents an accurate record of the work of the class as a whole. It is, of course, always subject to inspection by the school authorities and by the governing body.

In addition, each teacher possesses a book, in which he keeps his own record. An excellent one for this purpose is that published for the members of the Deutsche Verein für das höhere Mädchenschulwesen, containing the Time Table, yearly calendar, memorandum book, dates of vacations, class lists, addresses of pupils, besides a short directory of the Higher Girls' Schools in Germany.

The supervision of pupils outside school cannot, naturally, be so strict as in the case of boys, but there are certain rules to which all parents are expected to conform. Attendances at public dancing classes or balls is forbidden to girls who are still at school. Very often the Jahresberichte of the schools contain notices to parents requesting that the children shall return punctually to school, and that leave of absence shall not be asked for on any pretext, except that of serious illness. The rules for punctual and regular attendance seem to be strictly enforced, with very satisfactory result.

Many Directors regret that there is so little intercourse between the parents and the schools. Entertainments for the pupils are by no means as common in Germany as in England, and the parents have comparatively little opportunity of seeing or knowing what is done in school.

A child begins to attend school when she is six years old, and for the next nine or ten years (if she remain so long) the

parents have practically no voice in her education. Unless something goes wrong, it may happen that a parent for years does not see the Director. He is absolute and supreme in all matters connected with school. It rests with him to grant extension of holidays, leave of absence, or remission of lessons—for which a doctor's certificate is required. There is no choice of 'subjects.' The prescribed course must be gone through in the regular routine, occupying a certain number of years.

The fees charged are extremely low, ranging, according to the province or town, from about 60m. (£3) a year in the *Unterstufe*, to about 180m. (£9) in the *Oberstufe*—this latter sum representing the upper limit. The fees are not arranged on the same scale in every school, but the average might be taken as something between the above-mentioned sums. The charges for Seminar classes are usually rather more, but still are exceedingly low according to English standards.

A German public school is never regarded as a business undertaking, expected to pay so much on the capital expended. On the contrary, the fees seldom pay for the cost of the school, and must be supplemented from public sources, whether government or municipal, as the case may be. This is a matter of course. The Director of a school with 700 pupils will announce in his yearly Report that the expenditure has exceeded the receipts by some £2,000.

The German parents value highly the privilege of very cheap and very good secondary education for their children. They are proud of the excellent reputation of their schools, and as the advantages are so largely on the side of the public, the Directors are seldom troubled with groundless complaints.

A very charming feature of German schools are the excursions made in summer by the classes, accompanied by their teachers. Delightful expeditions to places of historic interest, or to lovely country, give opportunities for agreeable intercourse between teachers and pupils, and are remembered with pleasure for long afterwards. It is hardly necessary to say that such expeditions are well organised and well carried out. Are we not in Germany?

V. (*d*) The Staff

The variety in the authorities to whom the secondary schools for girls in Germany are subject, is an indication that their official status has not yet been universally and finally resolved upon.

A large and increasing number are under the authority of the *Provinzial-Schulkollegium* (as are the Secondary schools for boys); others are directly under the *Königlichen Regierungen* of the province in which they are situated; others are either under the *Kreisschulinspektion*, or the municipal *Schuldeputation*.* Private schools are under either of the two latter authorities.

* See Appendix I. Also § III. above.

The control and management of Public Secondary Schools for Girls rest chiefly, as has already been said, in the hands of men. The *Lehrerkollegium* (Staff) consists of

(*a*) the Director, who has usually had an University education;

(*b*) a fixed number of *Oberlehrer*, also, as a rule, University men;

(*c*) a fixed number of *Lehrer*, who have had a Seminar training;

(*d*) one, or two *Oberlehrerinnen* (in Prussia);

(*e*) a fixed number of *Lehrerinnen*. Some of the latter may teach special subjects only, such as Gymnastics and Needlework.

In Baden the qualifications of the staff are more definitely stated. Including the Director, there *must* be *three* men who have had a University education, and in addition two Reallehrer, as well as the proportionate number of certificated Lehrerinnen. The staff is increased according to the needs of the school.

It can no longer be said that teaching in the *Oberstufe* is monopolised by men. On the contrary, as women show themselves qualified, they are taking a more important position in the Higher Schools, and sometimes teach throughout the School, in the principal subjects. In some *Seminare*, too, part of the Higher teaching is now in the hands of women.

The *Lehrerconferenz* is a characteristic feature of German schools. At certain times the staff meet in conclave, and the affairs of each class are exhaustively discussed. The meetings are, as a rule, carried out in a formal and business-like manner, and everything that is important for the welfare of the school is reported upon. As the Director has often a great deal of teaching to do, it would be quite impossible for him to keep in touch with his (perhaps) 700 or 800 pupils, but for these meetings. The friendly relations which exist between members of the staff, and their confidence in each other, is, especially in some schools, very marked indeed. There is a strong feeling of *esprit de corps*, and they appear to work together most harmoniously. The general organisation and curriculum of a school are prescribed by the Official Regulations. But the working out of all the details rests with the members of the Staff. This task once accomplished, their recommendations are submitted to the governing authority for approval.

Each class is assigned to the care of a special *Lehrer* or *Lehrerin*, whose position is much the same as that of the English Form Master or Mistress. Under the new Regulations one class at least in the *Oberstufe* must be given to an *Oberlehrerin*. These *Klassenlehrer* are responsible to a large extent for the conduct and welfare of their pupils, but as a general rule there is not that minute attention to discipline and tone which characterises the best English girls' schools. The regulations of the Sophienstift at Weimar require that a lady shall be in charge of each class, and she is solely responsible for it. She must be present when the children arrive in the morning, and at other

times, if she is not herself engaged in teaching elsewhere she remains in the room during lessons.

The Director of a girls' school is an important public official, and his authority is fully recognised as such. Although practically an absolute ruler within his own dominion, he is responsible for his actions to the governing body, whatever it may be, under whose jurisdiction the school is placed. For example, a Director cannot appoint or dismiss the members of his staff; nor can he of his own authority expel a pupil. He cannot at will introduce a new school book, or a new method of teaching.

Detailed Annual Reports (*Jahresberichte*) are drawn up by the Director, giving a definite statement of the position of the school, the staff, curriculum, number of pupils, books used, organisation, and the chief events of the year. These are printed and circulated among the parents and those interested in the school, and form an invaluable record of the work accomplished and the development of the school. Moreover, the Director has to report to the authorities concerned upon everything referring to the school.

In every way the position of the Director of a Higher School for Girls is an honourable one. To occupy the post, as a matter of course, he must be a man of irreproachable character and distinguished attainments. His attitude towards the other members of the staff is that of friend and adviser, rather than merely of superior and critic. Being himself a highly skilled and experienced teacher and a good organiser, he inspires respect and confidence in all with whom he is in contact. He fulfils his own duties (and they are very numerous) punctually and conscientiously, and he expects that others shall do the same. He is, as a rule, regarded somewhat with awe by the children, who look on him as a superior being. Still the relations are often very charming and friendly on the side of the girls, as I have had many opportunities of noticing. While in the best schools in these days the *Lehrer* and the *Lehrerin* stand, in theory at least, practically upon the same footing, there are some departments which are especially for women teachers. Notably, of course, *Handarbeit*, without exception, and Gymnastics—in the *Oberstufe*, at any rate. Sometimes, but rarely, Gymnastics in the junior classes is taken by a *Lehrer*. Drawing, too, is largely taught by women, though they have no monopoly of it. Sometimes there are special teachers in a school for these subjects alone; in other schools they are divided among those ordinary teachers, who possess the requisite qualifications.

The position of a mistress in a Higher School for Girls has advantages which help to compensate for the great severity of the work. The staff is large, and supervision of the girls outside the class rooms is so arranged that much less falls upon the individual teacher than would usually happen in an English school. A mistress arrives in time to give her lessons; that is as a rule sufficient. She may have to take *Andacht* (Prayers) on certain mornings, or may be responsible for good order in the playground or passages during the *Pausen* at appointed times

but, as a rule, no more is expected of her. The intervals between lessons are intended as much for teachers as for pupils, and, except the small number required for supervision at these times, the rest of the Staff are free.

Outside school the teacher has nothing to do with her pupils, and in school her connection with them is limited to giving lessons. There is much less personal intercourse between teacher and pupil than is usual in a girls' school in England.* There are none of the clubs or societies regarded as such an important part of English school life. The classes are large, and the strain of giving lessons, as they are given in Germany, is very exhausting; the correction of exercise books, too, must be accurately and thoroughly done, in a certain way, at a certain time. Every lesson must be carefully prepared, no matter what the subject. In fact it may be said that the hardest part of the school work is done outside school.

At any hour, on any day, classes are liable to inspection. It may be the Director, who keeps a careful watch over the work being done in his school, or the *Schulrath* who comes in to hear the lesson. No notice is taken of the presence of a visitor; the work must go on as usual.

Still the position of a mistress in a Public Secondary School has marked advantages. Once regularly appointed (*angestellt*) to a permanent post she is settled for life. She is sure of her post as long as she is able to occupy it, and in case of illness or old age will be granted a pension. She is in fact a "civil servant," a member of an honourable and honoured profession, with a recognised position.

The salaries seem low to English notions, but the certainty is a distinct gain. Also Germans live in a more simple style than English do, and the income which would mean poverty in England, goes far in the hands of a wisely economical German.

The rule limiting the number of lessons required from a teacher applies, of course, to women, so that when they are appointed to a post they know exactly what will be demanded of them. It is true that in the case of illness of one member of the staff the others are expected to fill up the place, each giving up free hours to do so. But even this is in a mistress's favour, as she knows that if she falls ill her work will be undertaken by colleagues, and neither will she have to pay for a substitute nor will she run the risk of losing her post.

V. (*e*) The School Building

As might be expected in Germany, very great importance is attached to the School Building. Strict regulations are laid down which cannot be evaded. To build a day-school for seven or eight hundred girls, combining the maximum of excellence with the minimum of cost, is a serious problem. But when a question

* Cp. § IX. below

of health and fitness arises, then expense is of secondary consideration. The buildings, especially those of the newer type, have a dignified and fitting appearance. The site is carefully chosen from the point of view of health and convenience. There is a large, well-gravelled playground, generally planted with trees at short distances apart. It must be remembered that shade is a matter of importance in the hot German summers. For this reason, in the newest and best-planned buildings, the classrooms, as a rule, face the north. The best authorities on school hygiene think an equal distribution of the light not practicable otherwise. The great corridors face south, fully exposed to the sun's rays, with the class-rooms opening off them.

Artificial light is used as little as possible. In some of the newest schools electric light is provided, the lamps being high up, and arranged so as to produce the effect of daylight.

The arrangements for heating vary. Some of the older schools have gas stoves, which are not at all satisfactory. The new buildings are provided with the best and most modern heating apparatus, so that the temperature can be regulated at will. A thermometer hangs in every class room in Germany, and it is part of the duty of the teacher present to see that a certain temperature is maintained. Rules for opening windows and doors at specified times are strictly kept. The problem of ventilation seems to have been satisfactorily solved in at least two of the newer schools which I visited.

Each school building *must* have a separate class room for each class. The notion of teaching two, or more, classes in one room would not be tolerated in Germany. There are also rooms for Science Teaching, Drawing, Needlework, Singing, and a large gymnasium. Separate sitting rooms for the *Lehrer* and *Lehrerinnen* are provided, as well as the Director's office and the waiting-room. A good library is also an important feature in every school.

The cloak-room arrangements are generally more primitive than those in English schools. Hats and cloaks are often hung up in the class rooms, but, as a rule, rows of pegs are provided close to the class-room doors, in the corridors, and here outdoor garments are left. Shoes are not changed on coming to school—the same boots or shoes are worn all day, in school, in the playground, and even in the gymnasium. The playground is a most important addition to the school, as it is used after every lesson when the weather is fine. At the Viktoriaschule in Darmstadt, and at the Dorotheenschule in Berlin, there are tennis courts which are very popular with the girls. The Viktoriaschule has a Botanic Garden also as an accessory to the school.

As a matter of course the school furniture is good everywhere, but the highest excellence is attained in the newest schools, where every modern improvement is to be seen. Desks are usually made for two pupils; the latest model seems as admirable as can be designed for the purpose.

Class rooms are generally rather lacking in decoration, though

in many schools interesting photographs, or engravings of famous cities or public buildings, adorn the walls. At the Weimar and Darmstadt schools a number of very beautiful photographs of famous pictures hang in the corridors or class-rooms. Everyone knows that German school-accessories of all kinds are the best in the world. The girls' schools are no exception to the rule. They are most generously supplied with everything that ought to be found in a well-furnished school. The relief maps are especially remarkable — one of Darmstadt and neighbourhood, and another very fine reproduction of the Lake of Constance and surrounding country, the water being represented by glass, while the course of the Rhine through the lake was clearly indicated, were the best I have seen.

The newest map-stands are provided, as well as ingenious contrivances by which maps are suspended from the ceiling. There are black boards of every degree of excellence, sliding and reversible, or fixed up on the walls of the room; in fact, everything is as good as can be had of its kind.

The Gymnasium (*Turnhalle*) is always well supplied with apparatus deemed suitable for girls. Ladders, swings, parallel bars, and whatever else is necessary, are liberally supplied. Sometimes the gymnasium, if very large, has to do duty also as an assembly hall (*Aula*), and school gatherings of every description are held in it.

But there is generally a large and imposing Aula for use on state occasions. This room is richly decorated, according to German taste, and has busts of the Emperor and Royal family in conspicuous positions. Fête days, such as the Emperor's birthday, are celebrated by assembling in this hall. The Director or one of the Professors gives an address to the children, and patriotic songs, or hymns suitable to the occasion, are sung.

There is no doubt that every stranger who visits a German school, and especially one of the newer type, is most favourably impressed by the hygienic excellence of the building, the ranges of class-rooms for special subjects, admirably equipped, and the ample supplies of teaching apparatus. When we reflect that everything connected with staff, teaching, and organisation is of equally high merit, it is easy to understand why German schools are famous throughout the world.

VI. The 'Mädchengymnasium'

The 'Mädchengymnasium,' strictly speaking, does not yet exist, though the word has often been vaguely used by English and American writers. There are 'Gymnasialkurse' and 'Gymnasialabteilungen,' but there is *no* 'Mädchengymnasium,' in the German sense of the word, as yet. As every one knows, a 'Gymnasium' in Germany means a public classical school for boys, the leaving examination of which, when passed, entitles them to matriculation and all the privileges of the University. Women who seek admission to the Universities (as 'guests') and to the learned professions, in order not to be at a serious disadvantage, must have had a previous training at any rate

closely resembling that given to boys at a Gymnasium. We have seen that the Higher Girls' School does not give them that training. So in order to remedy this deficiency in public secondary education for girls in Germany, the following 'classes' or 'branches' have been established.

In 1893, the 'Gymnasialkurse' for girls were started by the "Vereinigung zur Veranlassung von Gymnasialkursen für Frauen," in Berlin. These classes are for girls of fifteen and older; they are held in the class rooms of the Charlottenschule, and of these Fräulein Helene Lange is the Principal. Others soon followed. In 1894 the 'Gymnasialkurse' at Leipzig were begun, in 1898 the classes at Königsberg, and in 1899 at Hannover. Those at Königsberg form a 'Gymnasialabteilung,' for girls of fourteen, and were established in connection with a private school by the Association "Frauenbildungsreform." In Karlsruhe there is also a 'Gymnasialabteilung,' which is a branch of the public Higher Girls' School, for girls of twelve. A similar arrangement has just started at Stuttgart, but at present there is only one class. A request to be permitted to open 'Gymnasialkurse' for girls in Breslau has been refused by the Government.* Plans are being discussed for the formation of a 'Mädchengymnasium' in Köln, and, latest of all, at Frankfurt-am-Main, where, if newspaper reports are to be trusted, a request for permission to establish one has already been sent in to the Government.†

I propose to give some account of the institutions of which I can speak from personal knowledge, the 'Gymnasialkurse' at Berlin, and the 'Gymnasialabteilung' at Karlsruhe. It will be seen that the 'Gymnasialkurse' differs in one important point from a 'Gymnasialabteilung.' The former is intended for girls who have *completed* their course in the Higher School, or who have done equivalent work. The latter is *parallel* with the higher division of the Higher Girls' School.

Opinions differ as to the age at which a girl should begin classical work. In Berlin and Leipzig the authorities think that she should have reached an age at which she can judge for herself—can choose her own career. It is deemed important that she should have a voice in it, and that it should not solely be for her parents to decide, as is the case with a girl of eleven. On the other hand it is considered very difficult for a girl in *four* years to reach the same standard as a boy who has devoted nine years to preparation for the University. If the classes were large, and the average of ability low, this would doubtless be true. But the classes are comparatively small, so that each pupil receives a large share of the teacher's attention. Moreover, only girls of exceptional ability enter; they are eager students, devoted to knowledge for its own sake. Another point worth mentioning is that these girls have done

* I beg to acknowledge the kindness of Frl. Gernet, Ph.D., who furnished me with several particulars respecting the establishment of 'Gymnasialkurse.'

† Herr Schulrath Dr. Lüngen informs me that the consent of the authorities has been received. Candidates for entrance must have completed their full course at a Higher Girls' School.

more work in Modern Languages than most boys of the same age, so that when they enter upon the 'Gymnasialkurse' they are free to give more time to those subjects which are new to them—Classics and Mathematics—than is usually required. Whatever may be the opinions, the result as seen in Berlin is perfectly satisfactory. Excellent work is done by the girls. Since 1896 candidates have presented themselves for the 'Reifeprüfung' held by the 'Prüfungskommission des Königlichen Luisengymnasiums,' and elsewhere, every year, with unvarying success. Previous to last Easter, fourteen students had passed the required test. Of these, eight have devoted themselves to the study of medicine, four to philology, and two have married.

To all young men who have passed the 'Reifeprüfung' of a Gymnasium the right of 'Immatriculation' at a University, with all its attendant privileges, is granted. But though women students have fulfilled all the conditions necessary for 'Immatriculation,' the *right* is withheld from them. Although they possess the same qualifications as young men, the women students must ask for permission to attend lectures as *Hospitantinnen*, and in each case the right of granting permission rests with each individual Professor. A young woman cannot, therefore, *choose* (as a man does) what lectures she will attend She can attend only the lectures of those professors who give her leave to do so. But though theoretically the position is unsatisfactory, in practice no real inconvenience is felt. Over and over again I have heard of instances of the extreme generosity and helpfulness of the German professor to his women pupils. A book might be written on this subject alone. To return, however, to the Berlin 'Gymnasialkurse.'

In order to enter, a girl must have completed her fifteenth year, and must pass an entrance examination, to show that she has finished the full course, in a fully equipped Higher School for Girls (or its equivalent). The plan of study is arranged for four years, beginning in October of each year. There are four classes, *Unterkursus, Mittelkursus, Oberkursus B, Oberkursus A.* One year is spent in each class, each year being divided into two terms. The classes are held, in afternoon hours, as already mentioned, at the Charlottenschule, in Steglitzerstrasse. The teachers are highly qualified, and specially chosen for the purpose, some of them from the boys' 'Gymnasien,' while others are distinguished women teachers.

The programme of work and lessons is as follows:—

Unterkursus

Winter Term: German, two hours; Latin, six hours; Greek, four hours; French, two hours; Geography, two hours; Natural Science, two hours.

Summer Term: Latin, four hours; Greek, three hours; History, two hours; Mathematics, four hours; other subjects as above.

Mittelkursus

Winter Term: German, two hours; Latin, four hours; Greek, three hours; French, two hours; History, two hours; Geography, two hours; Physics, two hours.

Summer Term: Religious Instruction, two hours; other subjects remain the same, except that Geography is discontinued.

Oberkursus B

Winter Term: Religious Instruction, two hours; German, two hours; Latin, four hours; Greek, three hours; French, two hours; History, two hours; Mathematics, four hours; Physics, two hours.

Summer Term: Latin, five hours; Greek, four hours; other subjects remain as before.

Oberkursus A

Religious Instruction, two hours; German, two hours; Latin, five hours; Greek, four hours; French, two hours; History, two hours; Mathematics, four hours; Physics, two hours.

Last Easter the number of students in each class was:—*Unterkursus*, twenty-four; *Mittelkursus*, twenty-six; *Oberkursus B.*, ten; *Oberkursus A.*, six; total, sixty-six. The falling off in the number in the higher classes is attributed to the fact that, on account of the uncertainty of the regulations at German Universities hitherto, students have left before the completion of their course, and have gone to study in Switzerland or elsewhere. With the improvement of the regulations for the admission of women to Universities, and greater stability, there is no doubt that all students will find it best to remain until their course is finished.

As said before, excellent work is done. I was especially struck by a lesson in Latin composition which I had the pleasure of hearing. The passage for translation into Latin was by no means easy, involving, as it did, knowledge of difficult idioms and grammatical rules. The class had been learning Latin less than two years, but had reached a high standard of excellence in that time. Not only correctness, but elegance of style, were insisted upon by the teacher. No slipshod phrase or inaccurate sentence was allowed to pass. The girls were perfectly familiar with their grammar, and possessed a vocabulary which seemed remarkable in such young students. It is hardly fair to make comparisons where the methods and aims of teaching are so different, but the standard of the work done might be illustrated for English readers by saying that the class possessed sufficient knowledge to answer well on a difficult Cambridge Higher Local Examination paper, and that most of them would certainly have gained 'distinction' in Latin prose. This seemed to me a most creditable result after less than two years' work.*

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* I wish to acknowledge the courtesy of Frl. Helene Lange, who kindly permitted me to see the work done in the 'Gymnasialkurse,' and furnished me with full details on the subject.

In 1894 the 'Gymnasialkurse' at Leipzig, founded by the 'Allgemeine Deutsche Frauenverein,' were started, and are going on most successfully. There are now about sixty-one pupils attending the classes. The school year begins at Easter. The conditions for entrance are the same as at Berlin, but the course is arranged for four and a half years. The work done strongly resembles that at Berlin, only that more time is given to Latin: from six hours a week in the Lower classes to eight hours a week in the Upper. The time for Greek ranges from five to six hours a week, and for Mathematics four to five hours. Religious Instruction is obligatory throughout. The first group of candidates for the 'Reifeprüfung' were admitted to the examination at the 'Königlichen Gymnasium' at Dresden last September, and all were successful. In these examinations it must be remembered that the girls have accomplished the same amount of work as the boys, and have reached the same standard, but they have spent a shorter time over it, and they are examined (as at Berlin) in unfamiliar surroundings, by examiners who are strangers to them.*

In 1893 the society "Frauenbildungsreform," of Weimar, obtained permission from the local authorities to open the junior class of a 'Mädchengymnasium' at Karlsruhe. Instead of corresponding to the *lowest* class of a boys' Gymnasium it was thought better to begin with *Untertertia* (*i.e.*, the lowest class of the middle division). Each year, it was hoped, an additional class would be formed, so that in 1899 the pupils would be ready to present themselves for the 'Reifeprüfung.' Girls of twelve years of age, who had passed through the two lower *Stufen* of a Higher School for Girls, were eligible for entrance. Though called *Untertertia*, the class was not quite the same as that which corresponds to it in a 'Gymnasium' for boys. The girls had to *begin* Latin and Mathematics, so Greek was postponed for another year. On the other hand, they were more advanced in French than boys of the same age.

The 'Mädchengymnasium' (or fragment of it, so-called) grew steadily for some years, but in 1897, for reasons too complex to enter into, it was taken over by the municipal authorities, and was incorporated as a division of the Higher School for Girls at Karlsruhe, being made parallel with the *Oberstufe* of the school. In its present organisation it resembles closely the latest model of the 'Reformgymnasium' for boys. As now constituted the 'Gymnasialabteilung' consists of four classes, as follows:—

Untertertia (average age, twelve). Subjects, and number of lessons per week: Religious Instruction, two hours; German, three hours; Latin, ten hours; French, three hours; History, two hours; Geography, two hours; Mathematics (Elementary

* I am indebted to Frl. K. Windscheid, Ph.D., the Principal, for the above information.

Algebra and Geometry), four hours; Natural History, two hours; Drawing, two hours; Gymnastics, two hours. Total lessons per week, thirty-two.

Obertertia (average age, thirteen). The same subjects with more extended course, and the same number of lessons.

Obersekunda (average age, fifteen). Subjects: Religious Instruction, two hours; German, three hours; Latin, eight hours; Greek, eight hours; French, two hours; Roman History, two hours; Mathematics, three hours; Natural Science, two hours; English, one hour (optional); Drawing and Gymnastics, three hours. Total, thirty-three—thirty-four hours.

Oberprima (average age, seventeen). Religious Instruction (including Church History), two hours; German, three hours; Latin, eight hours; Greek, eight hours; French, two hours Modern History, three hours; Science, two hours; Mathematics, four hours; English, one hour (optional); Gymnastics, one hour. Total, thirty-one—thirty-two hours.

The work of the 'Gymnasialabteilung' is carried on in a building adjoining the Higher School for Girls, and is under the control of Herr Hofrath Dr. Löhlein, the Director of the school. The special charge of the department is in the hands of Fräulein Gernet, Ph.D. of Heidelberg, who teaches some Mathematics and Science. The other teachers are men, specially appointed for the purpose, some from the boys' 'Gymnasien.' The teaching is of a very high order. I have never known such good work done by such young pupils. It is true the classes are small and the girls unusually industrious; still, that would hardly account for the excellence of the work. It was hard to believe that the *Untertertia* had been learning Latin only six weeks when I heard them having a lesson. The accuracy, clearness, and certainty of their knowledge spoke much for the good teaching they had received, and the excellence of the methods which made such results possible in so short a time. Their pronunciation and reading were admirable. The same remarks apply to the Greek lesson in the *Untersekunda*, where, for the first time in my experience, I heard German girls learning Greek. They were translating some fairly difficult Greek prose and answering questions in grammar arising from the text. The *Oberprima* were reading Horace, the Epodes. The lesson began with questions on the substance and meaning of the work they had prepared. Then they read aloud, some of them extraordinarily well. The translation into German came last, very fluent and free from awkwardness. The class had been studying Horace's life, and were now going to read some of the Satires. They began Book I., Sat. vi., and translated at sight with considerable fluency. They were extremely sure of their back work, gave quotations in reference to passages which were asked for, and showed the utmost interest in the lesson. The *Obertertia*, after one year's study of Latin, had reached the stage we associate as a rule with four or five years' work. The same excellence was noticeable in the Mathematical lesson in the junior class in which I was present. They were doing fractions in

algebra, and their methods were concise and clear, their answering prompt and accurate.

It is hardly fair to compare the work of classes taught as these are with that of average English girls in a High School. These girls are exceptionally clever, and they are being taught Classics and Mathematics under the same conditions as boys in a first-rate school, and by as good teachers. It is interesting to see that when girls are given an opportunity for higher studies in Germany no half measures are adopted. If this work is to be done at all it must be done well.

Not the least interesting part of the 'Gymnasialabteilung' at Karlsruhe is the *Internat* (boarding-house), under the control of the Society 'Frauenbildung-Frauenstudium,' where several of the girls live who attend the school. The fees are very low, but all the arrangements are good, and time is allowed for the girls to study under favourable circumstances. The first group of girls who have gone through the full course (six years) at Karlsruhe, passed their 'Reifeprüfung' at the 'Gymnasium' for boys last summer.

There is still much opposition on the part of many of the Directors of the Higher Schools to the establishment of 'Mädchengymnasien.' Several even of those who desire a more liberal education for girls, fear the effect of overstrain and the evil of working with an examination in view. At the Conference of the Verein für das höhere Mädchenschulwesen, held at Hildesheim, in October, this question gave rise to a long discussion. The Director of an important school, Dr. Wespy, of Hannover, read a very interesting paper on *Mädchengymnasium und höhere Mädchenschule*, in which he said that, in his opinion, while the Higher Girls' School remained at its present pitch of excellence there was no real need for the 'Mädchengymnasium,' and that the cry for it, so loudly raised nowadays, was not justifiable. It is true that for women who desire to enter the medical profession a classical and scientific education is necessary. Some means must be devised to provide these ladies with such a training as would enable them to pass the 'Reifeprüfung,' in order that they may enter a university. Perhaps the best solution of the difficulty is the institution of 'Gymnasialkurse,' such as those held in Berlin and Leipzig, which are attended by girl students who already have completed their full school course. But it would be a great pity if the rise of the 'Mädchengymnasium' should injure the Higher Girls' Schools—either by taking away the best pupils, so that the standard of the schools would decline, or by causing the schools to be split into departments, or by exposing the pupils to the risk of overstrain and injury to health from preparation for examinations. That women can reach the same intellectual goal as men admits of no doubt, but whether this is for their real happiness and welfare is another question. It is by no means proved that the ideal education for a boy is also the ideal education for a girl. Even if a woman is endowed with mental powers equal to those of a man, it does not follow that

her powers are exactly similar in kind, or that the same training is desirable for them.

From the reception of Dr. Wespy's paper, it would appear that he represents the opinions of the great majority of men engaged in the education of girls in Germany. Resolutions were passed that the establishment of a limited number of 'Gymnasialkurse,' if necessary, was desirable; but that the work should be kept separate from that of the schools.

Here is another expression of Dr. Wespy's opinions, published in the *Jahresbericht* of his School: "In the interests of the pupils attending the Higher Schools for Girls, a distinct protest must be raised against those people who contend that the education provided in these schools does not correspond to the rapidly growing demands of the present day, and that it is necessary that 'Mädchengymnasien' should be founded. It is true that these afford the easiest means for women who wish to became doctors to gain the necessary preparation. But these are the only exceptions. They are quite undesirable for those girls who intend to present themselves for the *Oberlehrerin* examination: for them the path lies through the Higher School and the *Seminar*. Therefore, it is of extreme importance that all girls who do not intend to enter the medical profession—that is, the vast majority—should remain at the Higher Girls' School until they have completed the full course of nine, or, better still, ten years, the last being in the *Selekta*. Girls who leave school while they are still in Class II. have only received an incomplete and fragmentary education, as a glance at the programme for Class I. will show. But if girls leave school young, and then enter a 'Mädchengymnasium,' they have only this superficial training to serve as a basis on which to found an education of quite a different kind, in subjects such as Classics and Mathematics, with which their previous work has had little or no connection. It is possible that those girls who can take the full course at the Gymnasium, and pass their final examination, may have received a good education. Whether it is really equivalent in value to that given to boys only time will show. But for girls who are obliged to leave the 'Gymnasium' midway—that is after *Untersekunda*—the position is serious. They have undergone two quite different kinds of mental training, and have not finished either. It is no answer to say that many youths leave the 'Gymnasium' at this stage. The young man who has got his 'certificate' will find many careers open to him. But the girl is at a serious disadvantage; she is helpless; she has been obliged to neglect many useful parts of her education, and, in her present position, she is in many respects much worse off than her companion of the same age, who has finished her course, whose education is complete and thorough, and firmly grounded in her by a ten years' course of study under the teachers of the Higher Girls' School—an education, moreover, which is essentially the same all over Germany."*

* Herr Direktor Dr. Wespy has kindly given me permission to quote his opinion on this subject.

I have quoted these expressions of opinion as they seem to show, more clearly than any words of mine could, how any deviation from the path laid down is regarded, or how experiments in education for girls are received in Germany by the majority. Still, there are very many men who think differently, and in order to represent another phase of opinion upon this subject, I quote a paragraph from a remarkable speech of Herr Schulrath Dr. Lüngen, of Frankfurt-am-Main, which has been widely circulated in Germany among those interested in the movement. After contrasting the care and thought bestowed upon the education of boys with that of girls, Dr. Lüngen concludes by saying:—"I now come to my final argument: all that I have hitherto said of the necessity of a liberal education for women, important and obvious as it is, is beside the mark, and does not touch upon the real question at issue. This is: it is our duty to regard a woman, not merely as a woman—the helpmeet of man, the mother of children, the worker, perhaps driven by hard necessity to self-support—but as a *human being*, with the same rights as other human beings. We all believe that a young man, whether rich or poor, whether intended for a profession or not, has imposed upon him the noble and sacred duty of cultivating to the utmost perfection those gifts of the intellect with which Nature has endowed him, so that he may approach as nearly as may be to the ideal of humanity. Now, I ask, what right have we, men, to release a girl from this noble and sacred duty? Why, on the contrary, should we render the fulfilment of it difficult, if not impossible, for her? Is it not as if we lopped the topmost part of a beautiful tree which was striving towards the sunlight? Are we not binding down in chains of spiritual slavery a large part of the human race? Are we not cruelly withholding from women the noblest, highest good—the possession of spiritual freedom? Are the words of Schiller never to be applied to women?—

Da zerrinnt vor dem wundernden Blick der Nebel des Wahnes,
Und die Gebilde der Nacht weichen dem tagenden Licht.
Seine Fesseln zerbricht der Mensch.

No: Let us now begin to pay the debt of centuries. To the grace and personal charm of women let us add the charm of a trained intelligence, let us remove the bandage from their eyes and lead them to the fountain of knowledge, that they, too, may have their share in the gathered wisdom of ages, that they may despise empty frivolity and idle chatter, and may learn to know the highest and most inspiring of all human pleasures—the joy of mental achievement."

VII. The Training and Examination of Teachers

No woman can teach in any Public School in Germany without having passed an examination which qualifies her for the

position she desires to occupy. The system of examination in Prussia is somewhat complicated and requires explanation.

The following examination is open to candidates who have completed their nineteenth year, and who have had the necessary previous training:—

(*a*) *Lehrerinnenprüfung* (First Examination for Women Teachers), for Teachers in Elementary and Secondary Schools.

For senior candidates there are now two higher examinations.

(*a*) *Wissenschaftliche Lehrerinnenprüfung* (Higher Examination for Women Teachers) for women who having passed the *Lehrerinnenprüfung*, and have had five years' experience in teaching, and who wish to become eligible to teach in the higher classes of a Secondary school.

(*b*) *Schulvorsteherinnenprüfung* (Head Mistresses' Examination) for candidates who have passed both (*a*) examinations as above, and who wish to be eligible for appointment as Head of a school.

Formerly this was the only higher examination for women teachers, but since 1894 candidates for it have also to take the *Wissenschaftliche Lehrerinnenprüfung.*

The regulations in other States vary; they will be described later.

In addition to the ordinary *Lehrerinnenprüfung* there are certain examinations for teachers of special subjects. These are Modern Languages, Needlework, Drawing, Gymnastics. Candidates for all these examinations must have completed their nineteenth year, and must have the usual satisfactory record of work and character.

The Modern Language examination is intended for students who have not already passed the *Lehrerinnenprüfung.* Candidates can elect to be examined either in French or in English, or in both. The examination is theoretical—written and oral—and practical, and is a sufficiently severe test.

Candidates who pass it satisfactorily receive a certificate which entitles them to teach one, or both, languages in a Middle or a Higher School for Girls.

The examinations in Needlework, in Drawing, and in Gymnastics can be taken either (*a*) by candidates who have already passed the *Lehrerinnenprüfung*, and who desire to specialise in one or more of these subjects, or (*b*) by candidates who can give satisfactory proof that they have had a good general education, in addition to the requisite special preparation, and who intend to seek employment as special teachers of one or more of these subjects.

The regulations are strict in each case, and the examinations are a good test of proficiency. They are held in certain places duly specified, and are carefully conducted by highly competent authorities.

The examination for Head Mistresses already mentioned

* See Appendix V.

must be taken by ladies who wish to become eligible for appointment as Heads of schools. According to the regulations of 1894 the *Wissenschaftliche Lehrerinnenprüfung* must be passed by the candidate either before or after the examination for *Schulvorsteherinnen*. A very close and extensive knowledge of teaching and the history of Pedagogy is required for the examination. It consists of a treatise written upon a given theme, in addition to the usual exhaustive oral examination.

In order that the student may be prepared for her examination, three years' training are given in the *Seminar*.*

Once more we find, in the case of the *Seminar*, as with the Girls' Schools, that the State is not very keenly alive to its responsibility in providing for women, but bestows the lion's share of its attention on the training of men teachers. The contrast is, as before, most strongly marked in Prussia. For example, there are about seventy-five *Lehrerinnenseminare* in Prussia, of which about ten are founded by the State. On the other hand, there are for men 114 in Prussia alone.

It is somewhat better in other parts of Germany, where out of a total of forty *Lehrerinnenseminare* thirteen owe their origin to the State; that is, in Prussia the proportion of men's State colleges to women's is in the proportion of eleven to one, and in the rest of Germany of five to one.

The *Lehrerinnenseminare* in Germany may be classified as follows:—State, 24; municipal, 42; private, 49; total, 115. It will be noticed that the training of teachers is, like the rest of girls' education, left chiefly to the cities and to private individuals to provide.

Nearly all the important *Seminare* are attached to Higher Girls' Schools, forming quite a separate department however, and under the immediate control of the Director. The students have practice in teaching in the school, under the guidance of the Professors. A few of the *Seminare* are separate institutions, and practice in teaching for the students is provided otherwise. These colleges are, as a rule, intended for day pupils only. There are exceptions, however, as, for instance, the Prinzessin Wilhelmstift at Karlsruhe, which has a boarding-house for students attached to it. The larger proportion of these colleges are undenominational. Religious Instruction is given according to the Church to which the students belong—Lutheran, Roman Catholic, or Jewish, in, of course, separate classes.

The qualifications for entrance to the *Seminar* are, with slight variations, practically the same everywhere. A candidate must have completed her sixteenth year; she must have taken the full course of study at a Higher School, and, as a rule, must pass an entrance examination.

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* See Dr. Müller-Frauenstein's article on *Das Lehrerinnenbildungs-und-Prüfungswesen* in the *Handbuch des höheren Mädchenschulwesens*.—Dr. Wychgram.

Even if a girl possesses the necessary ability, it by no means follows that she remains at the *Seminar*, and becomes a teacher. The Director of a well-known *Seminar* said to me, "All the girls who come to us are not fit to teach, though they apparently possess the qualifications which our rules require. They enter our junior *Seminar* class. We study them carefully, their characters, their knowledge, their ability, above all their personality. The members of our staff have had long experience, and are good judges and critics. We talk over the girls at our *Conferenzen*. We do not hastily decide. We give them an opportunity to show what is in them. But before the end of the first year we are in a position to form a definite opinion. Then I send for the parents and say, 'Your daughter is not suited to be a teacher. There are many other things she could do better. Do not waste her time and your money by allowing her to try to enter a profession in which she will not succeed.'" So the unsuitable students are withdrawn, and the "fittest" who have "survived" go on for a second and a third years' study. I asked if the girls often failed to pass their final examination. The Director answered, "Never; I do not allow them to enter unless they are perfectly ready for it. Moreover, I know what they have studied, and they are asked questions within the scope of their knowledge; the object of the examination is to find out what they know, not what they do not know."

As in many parts of Germany, the *Seminar* represents the highest standard of education for women attainable in that district, it frequently happens that the classes are attended by students other than those who mean to become teachers. This is, for example, the case at the *Seminar* attached to the Viktoria Schule, Darmstadt, at Coblenz, and at Stuttgart. The arrangements for receiving such pupils vary—sometimes they attend the whole course, sometimes they prefer to take lessons in a few subjects only, sometimes they are admitted to the final examination, and sometimes not. Opinions differ as to the desirability of receiving these students into the *Seminar* classes. Some Directors are inclined to encourage their attendance, but others regard it as a distinct disadvantage. The question is more serious than appears at first sight. Many English teachers know how difficult it is to do justice to a senior class of girls, some of whom are preparing for a University examination, while the others have no definite object in view. The same methods of teaching are impossible to adapt to all; some pupils are sure to suffer. But the range of study in a German *Seminar* is narrower than that in an English College, more strictly 'professional' in its aim. As far as an outsider can judge, the attendance of voluntary students at the *Seminar* is an advantage to the 'professional' student, in that it provides her with the pleasant companionship of girls who, of their own free will, have sought the best means of higher study within reach, though not compelled by circumstance to enter upon a course of training as a teacher.

Time Table of a Seminar in Baden.*

(Not attached to a Higher School.)

Classes.	III.	II.	I. Compulsory.	I. Optional.
1. Religious Instruction	2	2	2	
2. German	4	4	5	
3. French	4	4	8	
4. English	4	4	7	—
5. Arithmetic	3	3	—	
6. History	3	3	3	—
7. Geography	2	2	—	
8. Physical Geography	2	2	—	
9. Natural Science	1	1	—	—
10. Pedagogy	2	3	1	—
11. Practice in Teaching	1	1	1	—
12. Singing	2	2	—	1
13. Drawing	1	1	—	2
14. Needlework	1	1	—	1
15. Drill	1	1	1	—
Total	33	34	28	4

Time Table of a Seminar in Prussia.

Classes.	I.	II.	III.
1. Religious Instruction	2	2	2
2. German	4	4	4
3. French	4	4	4
4. English	4	4	4
5. Arithmetic	2	2	2
6. History	2	2	2
7. Geography	1	1	1
8. Natural Sciences	2	2	2
9. Drawing	1	2	2
10. Writing	1		—
11. Needlework	2	2	2
12. Singing	1	2	2
13. Drill	1	2	2
14. Pedagogy	2	1	1
15. Practice in Teaching	6	—	—
Total	34	30	30

* Cp. Prussian time-tables above.

While most of the German States conform to the Prussian Regulations for the First Examination for Women Teachers, others, having already made their own Regulations, adhere to them, and as these regulations differ from the Prussian in some important respects a short reference to them is necessary. The great drawback of the Prussian Regulations is that they require only *one* examination at the end of, and as the result of three years' work; and that the candidates are obliged to keep up all the Elementary subjects until the end of their course, to the partial neglect of their Secondary subjects. A glance at the list of subjects will show how burdensome this must be.

In the *Seminare* in Baden there are two examinations; one at the end of the first two years includes all the Elementary subjects. The candidates who pass this examination are qualified to teach in the Elementary Schools, and in the Elementary classes in the Higher Schools. The examination for the Secondary Schools is held at the end of the third year, and candidates for it have time to specialise in their most important subjects. The advantages of this arrangement are obvious.

This preliminary examination formed one of the most important topics of discussion at Hildesheim this autumn at the Conference of the Verein für das höhere Mädchenschulwesen, which has been already mentioned. A resolution was passed to this effect—that at the end of the first two years' training an examination should be held in "the technical subjects, as well as in those which impose most strain on the memory."

In the discussion upon this resolution, very interesting light was thrown upon the disfavour with which examinations for girls are viewed in Germany. Many of the Directors present feared that the advantages of this preliminary examination would be counterbalanced by the additional fatigue, and the nervousness of the candidates at having an extra examination imposed upon them. Great solicitude for the true happiness and well-being of the girls entrusted to their care was shown, and sincere anxiety as to whether they might not be exposed to the risk of serious injury to health by having to pass an examination at the age of eighteen. Had the meeting consisted entirely of men the resolution might possibly have been rejected. Some ladies, however, declared that the dread of examinations was exaggerated, if not groundless, and that it would be far better for the girls to take their work in two divisions than to let it all accumulate till the end of the course, when there might be real cause to fear over-pressure.

The results of the Regulations in Baden appear most satisfactory. It sometimes happens that candidates having passed their first examination can remain no longer in the *Seminar*, but must seek a post at once. But, if circumstances permit, they are allowed to return, later on, to the *Seminar* to finish their more advanced course and to qualify for a post in the Secondary schools. This is the case at the Prinzessin Wilhelm Stift in Karlsruhe, at least, as Herr Direktor Dr. Oeser informed me.

There is no *Wissenschaftliche Lehrerininnenprüfung* in

Baden, as it has not been found necessary, and yet the position of women teachers in the schools there is said to be most satisfactory. Candidates who have passed their higher *Seminar* examination are, later on, when they have gained experience, eligible for posts as *Hauptlehrerin* (Senior Mistress). For example, in the Higher School for Girls at Heidelberg no less than eight ladies have this title, some of them giving lessons not only in the senior classes of the school, but in the *Seminar*. Again, at the Higher School, Freiburg, there are nine *Hauptlehrerinnen*, some of whom teach in the senior classes.

There is also no separate examination in Modern Languages in Baden. The comparative leisure of the last year at the *Seminar* allows time for all the candidates to specialise in this subject.*

In contrast to the regulations for the *Seminare* in Baden we may notice those in Württemberg, as exemplified in the State *Seminar* at Stuttgart. Here the course of instruction lasts only two years, and at the end of this period there is a 'Repetition Course" of six to eight weeks, after which the examination takes place. An entrance examination is compulsory at Stuttgart, by the result of which twelve girls who wish to become teachers, and belong to the Kingdom of Württemberg, are awarded free education, and, if necessary for their support, a certain sum of money annually. The remaining candidates for the entrance examination, if they satisfy all requirements, are admitted, up to the number of twenty to twenty-five annually. These pay ordinary Seminar fees. The entrance examination and subjects necessary are distinctly specified, and a high standard seems expected. The subjects taught in the *Seminar* are the usual ones, with the addition of History of Art, and Physiology. Under Natural History is included Geology, Mineralogy, Botany, and Zoology. The "Repetition Course" seems a special feature of this *Seminar*. In it, all the work in the multifarious subjects studied for two years is revised, and this accomplished, the students are ready for the Württemberg State Examination for Teachers in Secondary Schools. Every candidate must have entered upon her nineteenth year.

According to present Regulations in most of the German States, students are not admitted to the First Examination for Teachers until they have attained the age of nineteen. It must not be supposed that there is one general annual public examination at which all candidates are tested. On the contrary, there are three ways in which the examination may be conducted:—

(*a*) It may take the form of the leaving examination at those State *Seminare* which are specially entitled to hold it.

(*b*) It may be conducted by a specially appointed Commission.

(*c*) It may be held (again under the form of a leaving examination) at those other public *Seminare* which, having successfully prepared students for at least five years, have received the same privilege as the State *Seminare*.

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* See time-tables above.

As a rule, private *Seminare* are not entitled to hold Leaving Examinations, or, if they have been granted the privilege, it is temporary, and may be withdrawn if a change in the ownership of the school takes place. Special arrangements are made for the candidates who have been trained in a *Seminar* which is not empowered to hold a leaving examination.

The Board of Examiners consists of a member of the Provincial School Commission as President, and of three to five other members specially appointed, consisting generally of one of the Government School Inspectors, the Director, and representatives of the staff of the School or College where the examination is held.

The training and examination of mistresses for Elementary schools are identical, in most respects, with those for Higher Schools, and take place under the same conditions. As defined in the Government regulations, the 'basis' for both is the same, only that a higher standard of work in German and in History is expected from candidates for the Secondary Schools, and they must qualify in two modern languages. There are very few training colleges specially for mistresses in Elementary schools, and under present conditions most of the Secondary training colleges have no alternative but to prepare candidates also for the Elementary examination. It is true that some of the larger *Seminare*, at Hannover, for example, will only accept candidates who intend to present themselves for the higher examination, but the vast majority are attended by students who, perhaps, may hope, or desire, to pass the higher examination, and only take the lower when they find the former beyond their reach. From this it must not be quite taken for granted that the 'refuse' students of the *Seminar* are assigned to the Elementary schools. Much depends on the wisdom and insight of the Director, who guides the choice of the candidate to the career for which she is best suited. Many practical, and in every way admirable, students make excellent Elementary School teachers, who would not have been a success in a Secondary School. There is nothing derogatory in being a teacher in an Elementary School in Germany. In that country there is universal respect for teaching as a noble and lofty profession, whether practised in an Elementary School or in the University. And I have heard authorities, well qualified to express an opinion, lay great stress on the desirability of encouraging girls who have received a higher education to take up work as teachers in Elementary Schools.

To return to our subject. A short time before the final examination, under whatever conditions it is held, candidates are expected to inform the authorities whether they wish to be examined for the Elementary or for the Secondary Schools. The examination itself consists of two parts—theoretical and practical. The former is again subdivided into written and oral. The written examination consists chiefly of essays; for elementary teachers, German, with French (optional); for secondary, German, French, and English.

The oral examination is held by the Commission, and extends over the whole course studied in the *Seminar*.

The practical part of the examination consists of a lesson, previously prepared, which the candidate gives to a class, in the presence of the Board of Examiners. A careful record is kept of the performance of each candidate in each subject, the scale of "marks" being: (i.) Very good; (ii.) good; (iii.) satisfactory; (iv.) unsatisfactory.

Special importance is attached to German, Religious Instruction, and Arithmetic, and no candidate who fails to satisfy her examiners in these subjects can receive her diploma. Nor will she be allowed to teach in Secondary Schools unless her work in French and German comes up to the required standard. No detailed information is ever given to candidates as to the way in which they have acquitted themselves; their diploma simply states the class of school in which they are entitled to teach, whether Elementary or Secondary.

To return to the work done in the *Seminare*.

We notice once more remarkable uniformity in their curricula and organisation. It is the same as with the schools, though perhaps not so strongly marked. The usual subjects for examination are: Religious Instruction, Pedagogy, German, French, English, History, Geography, Arithmetic, Natural Science, Drawing, Writing, Needlework, Singing, Gymnastics, all of which are compulsory.

A comparison of the time tables of representative *Seminare* (printed above) will show the amount of time given to each subject, and slight variations in the curricula in different places. It will be perceived that in Baden the candidates are able to specialise in the most important subjects during their last year, as has already been remarked.

The work is almost exactly the same, with the addition of Pedagogy, as in the Higher Schools, only a more advanced stage is reached. The multiplicity of subjects prevents real specialisation in any branch, and this indeed is not intended.* Everything which has been done in the school course is repeated, as being what the candidate may herself be expected one day to teach. For example, I have heard several lessons in French grammar in which all the important rules from the very beginning were in process of revision by the students. The answering was exceedingly good, showing very exact knowledge.

As one would expect, the work in French and English in the *Seminar* is excellent. The foreign language is used for lessons in literature almost without exception. A wider knowledge is required than is usually expected in such young girls. A great deal of time is spent in essay writing, and on the whole the work must imply a somewhat severe strain. A long course is usually appointed for study, and in some *Seminare* there are

* These remarks apply to the general average of work done in the ordinary *Seminar*. We sometimes meet with notable exceptions. Among many others, admirable lectures on History and Literature, at Heidelberg, stand out clearly in my memory.

special books assigned for private reading, with which the students are expected to make themselves familiar. The same is true of German even to a greater extent. It must be acknowledged that the effect of the impending examination is sometimes noticeable in the work; it has not always the same spontaneity and freshness which is seen in the school classes. The great accumulation of subjects (although none except the German and foreign languages can be described as 'advanced' study) must cause anxiety to the candidates, lest it should not be possible for them to succeed in all. These students who are seriously engaged in preparing for their profession are about the same age as English sixth form girls. They look much older, however, and take life more seriously.

An important part of the work done in the *Seminar* is the practical training given to the students. This is done in two ways: either by "hospitieren" in the ordinary classes of the school, or by giving "practice" lessons themselves. To "hospitieren" is to attend lessons given by the teachers and professors, to listen and take notes of the methods used. Afterwards the subject is discussed with the teacher, who invites the criticism of the students, or explains his reasons for such and such a manner of procedure. The lessons given by the students themselves are carefully prepared, and a plan is drawn up, to which they are expected to adhere. These lessons are afterwards criticised by the professor (in whose presence they have been given) in the *Seminar* classes. I have heard very good lessons given by promising young teachers in the classes of the Higher Schools to which the *Seminar* was attached.

Once the years of preparation are over, and the examination is successfully passed, there comes a time of waiting for the young teachers. Experience must be gained before they can hope for a permanent appointment in a Higher School. Some of the students may be fortunate enough to be appointed at once to a post in an Elementary school, and others seek work in private schools or families. A fortunate few, if they have shown special aptitude, and can afford to wait before taking remunerative work, are sometimes taken on as junior assistants, or substitutes for absent teachers, in the Higher School to which the *Seminar* through which they have just passed is attached. By this means they have a chance of gaining useful experience under most favourable circumstances, which may perhaps hasten their promotion later on. But no matter what the training, there is no royal road to immediate success in the teaching profession in Germany. Promotion comes slowly but surely where there is real merit. It is uphill work, but the prospect of future reward and to be hereafter *angestellt* at some of the well-known Public Schools offers an incentive for work which is hardly to be found in any other country.

VIII. The 'Wissenschaftliche Lehrerinnenprüfung.'

The establishment by the Government in 1894 of a Higher examination for teachers marks an important era in the history

of women's education in Prussia. It was the result of a long uphill struggle to obtain due recognition, of combination under enlightened leaders, of resolute, patient endeavour not only to improve the position of women in Higher Schools for Girls, but to ensure their fitness for a higher position by wider and deeper culture. No rash innovations were sought, but year after year steady progress was made, each step in the upward direction being assured and justified by the one preceding it.

The first visible success was gained in 1888. In the year 1887 a petition was presented to the Prussian Minister of Education by the 'Allgemeinen Deutschen Frauenverein' praying that a larger share in the teaching in the *Oberstufe* of Higher Schools for Girls should be assigned to women, and that the State should found colleges for the higher education of women teachers, which should fit them to occupy the positions they desired. Although this petition was not granted by the Government, it may have had something to do with the establishment in the October of the following year of a course of special lectures for women teachers at the Viktoria Lyceum, in Berlin, of which Frl. von Cotta is principal.

At first only two subjects—History and German—were undertaken, but later on English and French were added. The course covered three years, and at the end an examination was held, on the result of which diplomas were granted to the students. The work was on the same level as that done in the University, and only needed official recognition by the State, with the title of *Oberlehrerin*, or something equivalent, to place it in exactly the same category as that done by men.

A few years later, in 1893, a similar course of lectures was initiated at Göttingen, under the leadership of Frl. Vorwerk. A very modest beginning was made. The course at first was to extend over only one year, and the lectures were given in a private house by University professors.* The final examination at Göttingen was to be equivalent to that of the Viktoria Lyceum.

But with 1894 came a new order of things, and for the first time a clearly defined goal was placed within the reach of women teachers. The long desired higher examination was instituted by the Government, the passing of which would grant them the privileges which had been sought so many years.

The Regulations for the examination are somewhat severe, and place it out of the reach of women of only moderate ability. The candidates must have passed their *Lehrerinnenprüfung*, and must have had five years' experience of teaching, under specified conditions. The course of study for the examination extends over two years. There are two groups of subjects†:—

A Religion, German, French, English.

B History, Geography, Mathematics, Science.

Two subjects are compulsory: One *must* belong to Group *A*; the other may be chosen from either group.

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* I am indebted to Frl. Stegeman, *Oberlehrerin*, Sophienstift, Weimar, for an interesting account of the origin and progress of the lectures at Göttingen.

† Since this was written, a new series of Regulations has been issued, for an account of which see Appendix V.

At the end of the course a State examination is held, and successful candidates are qualified for appointment as *Oberlehrerinnen* in public Secondary Schools for Girls in Prussia.

The arrangements already made for lectures at the Viktoria Lyceum and at Göttingen were altered to suit the new Regulations. The promoters of these lectures gladly welcomed the reforms; much of what they had desired for years was in a fair way of being realised.

As a result of the change in the position of women teachers, University lectures for them were soon instituted at Königsberg, Marburg, Münster, and, in this year, at Bonn. At first the final State Examination was held at Berlin only, but this privilege has now been extended to the other Universities. A ge number of students have already presented themselves for the final examinations, with remarkably satisfactory results.

Great difficulties stand in the way of teachers who desire to study for this examination. As already mentioned, candidates must have had five years' experience in teaching. This work has then to be given up, and their whole time has to be devoted to study. Moreover, the work is University work, for which the *Seminar* and years of teaching are not the best preparation. The students are, at least, twenty-five years of age, most of them older. Again, few of them have much money to spare; it is perhaps difficult for them to sacrifice two or more years' income. Several of the public schools have shown themselves extremely generous, for they not only provide a substitute for a valued teacher during her absence, but they pay her a portion of her salary to help to meet her expenses. Further, some help is given by Government grants, or by private people, or by such Associations as the "Allgemeine Deutsche Frauenverein," which pays several thousand marks a year to help women students.* Still it will be clearly seen that no small amount of energy and determination must be needed to give up a post, and to enter upon a course of severe and unaccustomed study when the first freshness of youth is past.

Under the most favourable conditions imaginable a candidate is at least twenty-seven years old before she can enter for her examination. Very few are so young. The goal, once achieved, is, however, well worth the trouble, and means an honourable position assured for life. In theory the highest prizes in the teaching profession are open to women who have passed this examination. In many schools the successful candidates are eagerly sought for, and desirable posts in the Higher Schools are placed within their reach. They teach in the senior classes in the school the subjects in which they have specialised. Some of the best lessons I heard in History and German (long considered the special province of the *Lehrer*) were those given by *Oberlehrerinnen*. When they have passed the *Schulvorsteherinnen* examination, these teachers become eligible for appointment as heads of schools, and it is probable that the

* See Appendix II. for the latest *Ministerial Rescript* upon this subject, and also Appendix V.

near future may see widely realised in practice what is now possible in theory.*

The Viktoria Lyceum in Berlin, as the first, is still the most important institution for preparing candidates for the *Wissenschaftliche Prüfung* for teachers. There are six courses of study, each under the charge of a specialist:—Religion, six hours; History six hours; German, six hours; French, six hours; English, six hours; Mathematics, six hours a week.

So far as I have had opportunity of judging, the work done at the Viktoria Lyceum is more in accordance with that of a University *Seminar* for men than it is in other places. Regular *Uebungen* of the class and professor, so far as is possible, and lectures alternately by professor and students (the latter based on home study and written work) are distinguishing features. Some of the students supplement their work at the Lyceum by attendance at lectures at the University, if necessary or desirable. The Modern Language lectures are given in the foreign language, as a matter of course. I had the pleasure of hearing extremely good work in French Metres and Phonetics, as well as a German literature lecture of the usual excellence which one always expects in work of this kind in Germany. The classes are held in the afternoon, and are attended by some very able students.

The lectures at Bonn University commenced only last spring. Many of them are given for women alone (especially in those subjects which are new to women students), but several of the ordinary University lectures are (by permission of the Professors) open to women also.

The subjects undertaken at Bonn are as follows:—

	Hours weekly.
Religion (Evangelical)	6
" (Roman Catholic	4 to 8
German	6
English	7 to 10
History	7 to 10
French	9 to 11
Philosophy	2
Psychology	2

Students who attend these lectures, especially those who take Religion, History, and French, are expected to possess some knowledge of Latin. Some acquaintance with Greek grammar is desirable for those who attend lectures in Religion. The students of German Literature are expected to possess a good 'first hand' acquaintance with modern German Literature, to have read Homer and the Greek tragedians in translations, to be familiar with Shakespeare's works, and to have as much acquaintance as possible with the principal works of Corneille, Racine, Molière, Voltaire, Rousseau, Richardson, Fielding, and Sterne.

The course of study extends over at least two years, and an additional *Semester* may be added hereafter.

* There are at least two of the smaller Public Higher Schools the Heads of which are women.

By the courtesy of Prof. Litzmann, Prof. Franck, Prof. Gotheim, Prof. von Bezold, and Prof. Trautmann, I was permitted to attend some of their lectures, both University and those for women students only, and was thus able to form an estimate of the work which is being done by the candidates for the Higher Examinations for Teachers at Bonn University. I was much struck by its thoroughness and excellence.*

Another opportunity for gaining wider culture is afforded to women teachers by the *Ferienkurse* (extension lectures) which are held every summer in connection with several German Universities; but as these are well known and have frequently been described, I omit further mention of them.

For the same reason, I have avoided giving any account of the special qualifications of the men teachers in Higher Schools for Girls Full details upon this subject are within easy reach of every English reader who is interested in it, and the expressions "akademisch gebildet," "Oberlehrer," "Professor," "Reallehrer," and the like, now convey a distinct signification to educated English ears.

IX.—Summary and Conclusion

The preceding sketch is an attempt, unavoidably incomplete and brief, to point out some of the most noteworthy characteristics of the system of State-regulated secondary education for girls in Germany. Prussia, as the leading State, has, as a rule, been taken as representative, and only the more remarkable deviations from the system prevailing there have been touched upon.

The regular and continuous development of the well-ordered 'Higher School' of the present day out of what was merely an elementary school forty years ago has been indicated. With the improvement of the schools, it has been seen that the position of the women teaching in them has also improved. The time is not yet ripe for detailed criticism, least of all from a foreigner, of a great scheme for public secondary education which is still, so to speak, on trial, and has not yet attained its full development. For this very reason it is a subject of special interest to students of education, in that it affords them an opportunity for observing the working of a system of comparatively recent origin before it has had time to assume its final shape, while it is still "im Werden"—a difficult problem in process of solution.

The mass of varied and conflicting opinion upon the subject of secondary and higher education for girls in Germany falls, on the whole, into two main divisions—*a*, of those who believe that in the Higher School and *Seminar* the best and safest solution of the problem is to be found; and, *b*, of those who, while they recognise the merits of these institutions, yet desire that women

* I take this opportunity of thanking Frl. J. Gottschalk, Honorary Secretary to the Local Examination Committee, for kind help and information given.

may have the opportunity of the more liberal education afforded by the 'Gymnasium' and the University. In other words, one side believes that a girl's education should differ essentially from a boy's, the other that it might possibly be the same. Between these two extremes there are many varying shades of opinion, but the general consensus of opinion seems to be that the 'Gymnasium' and the University are only for the select few, for those exceptionally gifted and ambitious girls who have a definite object in view, such as entering one of the learned professions. Only those whose vocation for higher studies is unmistakable should be permitted to enter upon them. It is instructive to contrast these conscientious convictions about higher education for girls with the tolerant (or, shall we say, indifferent ?) attitude of opinion in England, where it is not a matter of much general interest or importance if a certain public school chooses to prepare its pupils for the University or not.

Where the fundamental ideas upon which the two systems of secondary education for girls are based differ so widely as do the German and the English* it is no easy task to institute a comparison between them. The German dream is of the attainment of uniformity throughout the whole country; in England, as we know, it is otherwise. German students of education who have visited boys' schools in England are always much impressed by their variety of type, of organisation, of aim, and methods—in a word, by their extreme dissimilarity. Each school has its own traditions, its distinguishing characteristics, each stands alone. But to describe the 'infinite variety' of secondary schools for girls in England, and their relative degrees of merit, ranging from the top to the bottom of the educational ladder, a German could find no words in his copious vocabulary.

That the German school cannot fall *below* a certain standard of efficiency is guaranteed by its State-regulated curriculum and organisation, as well as by the system of official inspection. Each parent knows exactly what education his child will receive in the school of his choice. In England, where there is no such recognised public guarantee of merit, the success and reputation of the school depend to a much greater extent upon the Principal, on whose shoulders a vast burden of responsibility rests. Again, in England, education for girls affords a wide field for experiment and individual enterprise, the results of which may be wholly excellent or extremely mischievous. This could not happen under the more closely-organised German rule, where (except within a comparatively narrow range, or at great pecuniary risk) experiments in education are not readily tolerated. This has its disadvantages as well as its advantages. As we shall notice later on, the State control which sees that each school maintains a certain standard of efficiency exercises limitations in other directions, and the English school, with its more elastic organisation and more varied aims, may, *if under the guidance of a wise and enlightened Head,* achieve greater things, and realise a more lofty ideal than is possible under present conditions in Germany.

* In so far as England can be said to have a 'system' at all.

As is generally known, the boarding-school plays a much more important part in secondary education in England than in Germany. This is especially true of girls' schools. The vast majority of German girls attend the local day-school; very few, unless the circumstances are exceptional, are sent away from home to a boarding-school—certainly not until after they have passed through the Higher School.* There is nothing whatever to correspond to the best type of English boarding-school, which aims at doing for girls what for generations has been done for boys. There is no demand for such institutions in Germany; their value would neither be understood nor appreciated. At best they would be regarded as an example of the expensive luxuries in which, it is supposed, English people delight to indulge. Further, there are no Resident Colleges for Women attached to a University, and nothing which takes their place.

The only type of school, common to both countries, which will admit of fair comparison is the day-school. The nearest parallel to the German Higher School will be found among the *best* English public High Schools for Girls. I say "the best" advisedly, for though the German school may lack much that is deemed essential in England, it has, nevertheless, in its own class, within its own limitations, reached a degree of excellence which would be hard to find elsewhere.

State-regulated education does not necessarily ensure the best and highest culture for the individual, but it does certainly ensure a higher average of intellectual attainment for the majority than where no such compulsion is exercised. For instance, there were in 1897 about 58,000 girls who were in attendance at 196 fully-equipped public Higher Schools in Germany.† Now, if we include those schools which also provide secondary education, and also come under the designation "Higher," as they have practically the same curriculum as the "fully equipped," but have hitherto not been mentioned as they have fewer classes, this brings the number up to 363 schools, with a total of over 81,000 pupils.‡ No accurate return of private day-schools can be given, but it is estimated that they are attended by a still larger number of girls. It will be recollected, further, that a private school cannot call itself "Higher" unless it conforms to the standard required. It is almost certain, therefore, that a larger proportion of girls are receiving secondary education of a *certain clearly-defined character* in Germany than in England. Accurate statistics on the subject of girls' education in every country are elusive and difficult to obtain, but by including all the groups

* As already mentioned, the small private boarding school, or "Pensionnat," abounds in certain parts of Germany. But a large proportion of the pupils attending these are foreigners, who have come in order to learn the language. As a matter of fact, these schools cannot seriously be included in the *system* of secondary education in Germany at all.

† See § IV. above.

‡ *Kalender für die Mitglieder des Deutschen Vereins für das höhere Mädchenschulwesen.* Ed. Direktor Dr. Schröter. 1899.

of schools in the published Return, which could possibly be called public and secondary, it would appear that in 1897 there were about 33,953 girls under instruction in 287 English schools. That *all* these schools provide really *secondary* education is extremely doubtful; certainly only a small number of them would come under the same category as the German Public Higher School.*

One of the evils from which the German school is entirely free is that of preparing for examinations, either public or private; inspection takes their place with infinitely more satisfactory results. Again, as we have seen, it is not in any sense a business enterprise, expected to pay interest on the capital expended. The fees are low, and within the reach of all who desire secondary education for their children. Not that the school is in any sense a charitable foundation. The Germans are willing to pay higher taxes in order that their whole system of education may be regulated and controlled for the common good by highly-skilled experts, in whose powers they have perfect confidence. Granted a more liberal conception of the best education and training for girls, there seems no reason why the system of Higher Schools should not confer a very great benefit upon the country at large by raising the average level of culture for women throughout all Germany.

It is fully recognised that the absence of external stimulus of any kind renders the task of the teacher in girls' schools doubly difficult. It rests with him to furnish an incentive to study, and to encourage intellectual efforts. The question of his personality becomes more than ever one of grave importance, upon which the welfare of the whole school depends. The personal relations with the pupils in the school are on a different footing from those in the English schools, as we shall see further on.

The duties of the *Direktor* of a girls' school in Germany are in some respects less complex and more clearly defined than those of a Head Mistress in England. If he has less freedom of action, he has less responsibility, and less depends upon his own initiative. New pupils enter the school once, or, at most, twice a year, and, thanks to the system of compulsory education, he will not have much trouble in assigning her place to each. It is well known to every English Head Mistress that girls enter schools in England at any time of the year, at any age, and in

* See the *Return of the Pupils in Public and Private Secondary and other Schools in England, on 1st June, 1897*, published by the Education Department. These most valuable statistics show the number of schools with no day scholars, but not the number of schools receiving day scholars only. The German schools referred to are *day schools*, the English include *both* day and boarding schools. It will be recollected that the word "public," as applied to a school, does not convey the same meaning in Germany as in England. A German would not recognise as "Public" most of the English Girls' Secondary Schools which bear that name. For instance, a Company which is well known in England for its noble provision of Secondary Education for Girls, was described to me by a German educational authority as being "eine Gesellschaft, bloss um Geld zu verdienen."

every stage of ignorance. There would be no place for such girls in the rigid organisation of the German school. But it would be hard if they had to suffer for the negligence of their parents, so the English school receives them, and in a couple of years what a magical change is effected! The more elastic organisation and liberal methods of the English school can be adapted to the needs of the individual girl without an appeal to Parliament for permission to do so. The class system of teaching, the fixed curriculum, the clearly-defined organisation, and the absence of examinations render the drawing up of a time table for a German school of 800 girls an easier task than it would be for one-fourth of that number in England. The energy of the German *Direktor* is not dissipated upon all sorts of extraneous duties; he is at liberty to devote his whole attention to the serious business of the school, to see that his staff work harmoniously, and that the teaching in every department is the best attainable. He is satisfied that the organisation of his school is as good as it can be, and in any case it is not directly in his power to alter it. He has, of course a great deal of official work in drawing up reports and sending in returns of the school to the governing authority, but the question of finance does not come within his scope, nor is he troubled by any doubts as to whether the school 'pays' or not. As the *Direktor* of the school is chosen more for his fame as a teacher than as an organiser, and as powers of a specially high order are needed for dealing with girls, it follows that some of the best authorities on pedagogy in Germany are found at the head of girls' schools.

But while everyone is ready to acknowledge the great merits of the German system, we miss in the schools much of what is so original and distinctive in the English. The varied curriculum of the English school, *when in competent hands*, possesses advantages so obvious that it is wasted time to repeat them. When we reflect upon the 'system' of education for girls in England, as a whole, we acknowledge that it is chaotic, heterogeneous, disorganised—anything you like to call it. But let us take the *best representatives* of the system, and we shall find a nobler conception of woman's place in the civilised world, more exalted ideals of the training of the mind and the development of character than are probably to be found in any other country in Europe.*

One occasionally hears a certain class of schoolmistress speak in a somewhat slighting tone of a 'private school,' almost as if it was a term of reproach. It is quite true that for want of State control there is no guarantee of a fixed standard of efficiency in any private school in England, and that for lack of this many of them do not fulfil their real functions, nor, indeed, deserve the name of a school.

But the great debt which girls' education in England owes to

* Schopenhauer's opinion that "Die abgeschmackte Weiberveneration der abendländischen Völker ist die höchste Blüte christlich-germanischer Unnahbit" is however, not shared by everyone in Germany.

the private school must not be forgotten. Practically all that we value and admire most in the modern education of girls is due to the energy and initiative of famous women, who, without aid from the State or from any public fund, themselves founded schools, planned their organisation, devised their curriculum, and by their own efforts at once placed education for women on a higher level than it had ever occupied before. Many of the girls' schools of which England is, with good reason, proud, were in the first instance private schools and the work of individual women. These women have been able to infect others with their own enthusiasm, they have to a large extent educated public opinion, and once the initial stage of the school was passed, they have received support and recognition. But all that is best and most characteristic in the school is theirs. Their own personality is reflected in it. There is hardly any limit to their sphere of influence.

Even in the public school the Head Mistress in England reigns supreme as she does in no other country in Europe. No governing body or council dreams of interfering with her authority as long as she shows herself competent to exercise it. If she has more personal responsibility, and probably more worry than would be the case under State control, she has, as a compensation, more power; is more free to act as she thinks best; can modify or alter the organisation of her school; can introduce such books or subjects as may seem advisable; can re-arrange her staff; can influence the career of every pupil under her charge; is, in fact, a free agent—not a public official.

State control would not permit this free development of a school to suit the needs of a certain section. The natural growth and variety of such schools as the English would be hampered at every step by official regulations, which, while, it is true, enforcing a "mininum" of excellence, would certainly interfere if the prescribed "maximum" were exceeded.

This seems to me the inherent weakness in a system of State control as applied to girls' education, and while we admire the many and great perfections of the German schools, we regret that their very merits are a source of weakness, and that they are not more adaptable to the special educational needs of each individual pupil, or section of the community, instead of having a common uniform and invariable standard.

Many German women who have realised what great things are being done for girls' education in England by women, have also striven to obtain what was best for their girls. Their efforts have been only partially successful, for though they have accomplished wonders, and have earned the gratitude and admiration of their fellow women, they have not enjoyed the same perfect freedom from restraint which has enabled Englishwomen, to a large extent, to work out their own ideas, and to put their own carefully thought out theories into practice. Only those who have given serious attention to the subject can realise how delicate, how complex, how difficult the question of girls education is,

and what sympathy, what tact, and what insight into human nature is required in those in whose hands it is placed.

This leads to another important consideration. In England the education of girls is regarded as a *woman's* business. Not only is by far the greater part of teaching in girls' secondary schools in the hands of women, but with women chiefly rests the control and management of public schools for girls. Women are highly esteemed members of Councils and governing bodies of schools and colleges for girls; they are upon equal terms with men; their opinion carries the same weight. It would hardly occur to any educated person in England that it could be otherwise. But it is not so in Germany. Not only do women, as a whole, occupy a much less important position than men in the schools themselves, but, so far as I am aware (and I have made inquiries upon the subject), there are no women members of any of the governing bodies (Provinzial-Schulkollegien and the rest) under whose authority the schools are placed, nor have they any voice in the public control of the schools. It is true that representative women would probably be consulted by the authorities if any vital change in the constitution of the schools were intended, but rather in the capacity of witnesses than of judges. To English ideas it would seem desirable that in a system of State regulated education for girls, a large share of the power and control should be in the hands of competent women, before a final and satisfactory solution of so complex and difficult a problem could be hoped for.

To make general statements comparing the institutions of one country with those of another is, however, an occupation very tempting, but very difficult. After this digression it will be well to return to some consideration of the schools themselves before bringing this paper to a close.

Two mighty factors in the development of character, which exist in every English school worthy of the name, are found only to a limited extent in Germany: these are the personal influence of the teacher, and the physical and moral training gained in a well-ordered games-club. The personal relations between teacher and pupil are in Germany widely different from those which are encouraged in England. As a rule, there is little or no intercourse between them out of school, there is no common ground upon which all meet, no occupation or amusement in which both take part as equals. The teacher remains the teacher always, usually very kind and considerate, especially to the members of his or her own class, but there is no true comradeship or friendly equality outside school, such as gives the English teacher so much influence over her pupils. That the same person can play two different parts—in office, the teacher, the superior, the firm disciplinarian; out of office, the friend, the equal, the good companion—seems hardly to be thought compatible in Germany. The inestimable advantage of such companionship to the young, the healthy influence that may be exercised, the opportunities afforded to the teacher for studying the character of her pupil from a new point of view, do not seem to be considered. It is true

that the boarding-school offers more opportunity for fostering such relationships, but even in the day-schools the difference between Germany and England is strongly marked. As to organised games, in the English sense of the term, they simply do not exist in Germany, and their value as an aid to training character is imperfectly recognised. Much is being done in Germany to promote physical exercise for girls, but it is solely from the point of view of health. So far as my observation goes, the German girl develops more rapidly than her English sister: at 15 she is in appearance, dress, and manner, more womanly than the ordinary English girl of the same age. She does not take that keen interest in athletic pursuits to which we are accustomed in the modern type of English schoolgirl: she is not so free and unconstrained in her movements: she is already becoming a more responsible human being. The teacher, too, gives less time to exercise; her energy is spent to a greater extent upon her teaching. Though the hours are perhaps not longer than those of the English school, her work is of a more exacting nature. The strain of giving lessons according to German ideals is very great, as has already been said, much preparation is needed, and a long time is spent in corrections. The teachers have neither time nor energy to cultivate personal relations with their pupils; in many cases, as I know from my own experience, they have no inclination either.

The above remarks apply to women teachers only, and if there is little social or personal intercourse between them and their pupils, there is still less between the masters and theirs. In the nature of things it is impossible that it should be otherwise. When speaking of men as teachers in girls' schools in Germany, it must be remembered that they are not merely 'visiting masters,' still common enough in England, but that they form the most important portion of the regular staff of the school, and that even if not numerically superior, they carry most weight, as the principal posts are occupied and the principal subjects are taught by them. They are 'form-masters' of the principal classes, and have exactly the same jurisdiction over their classes as the women have over theirs. The task of administration, organisation, and teaching in a great school is admirably fulfilled by a man, his rule is beneficent, his influence over the staff and pupils excellent, but it is impossible that his relation towards the girls under his charge should be quite the same as that of a good Head Mistress towards those under her. I have often read, and have often been told, that family life on a large scale is illustrated in the girls' school in Germany. The analogy does not seem to me to hold good, unless, indeed, the mother consents to play a somewhat subordinate part in her own house.

The high standard of teaching in many girls' schools is undoubtedly due to the ability and competence of some of the men who teach in them. There is no need to dwell upon the advantages for a young girl of coming in contact with a keen masculine intelligence, when possessed by a skilled and successful teacher. No one could desire to exclude men from teaching in girls' schools;

quite the contrary. But it is regrettable that sometimes men who are not specially adapted for teaching in girls' schools are employed to do work which would certainly be more suitable for women. Further, it is my experience that the extensive employment of men in the most important posts tends to detract from the esteem in which women teachers are held by the public, and even by the pupils themselves. Many times young girls have told me that they preferred classes taught by men—"ladies do not know so much; they cannot teach so well." This was probably true, to a certain extent, until quite recently. The number of women who have had the same advantages as men is still comparatively small, though it is steadily increasing. But now men have by no means the monopoly of good teaching in a girls' school. By sheer force of character and intellect, and by thoroughly good work, women are winning their way to a position of influence and importance, from which they have hitherto been excluded by circumstances which they were powerless to control.

Englishwomen who wish to enter the teaching profession find many ways open to them: private or public school education, or private teaching; either Training College or University, or both; foreign education; nothing forms a bar. Once appointed to a post it rests with the teacher herself to make or to mar her own reputation. But in Germany there is only one road which leads to the teacher's profession—*i.e.*, through Higher School and Seminar to the State Examination. A woman who has obtained a Doctor's degree at a University is not eligible to become a teacher in a public school unless she has also gone through the regular course of preparation, nor can she hope for any of the prizes of the profession unless she has also passed the higher examinations which lead to them. Contrast this state of affairs with England, where a distinguished University graduate is a most welcome candidate for an important post in a school or college for girls.

In comparison with England, there are but few openings for educated women in Germany. There is the teaching profession of course, but under certain limitations; a very small proportion are entering the higher professions (medicine and the law), while others (but again only a small number) are employed in literary and journalistic work. Horticulture as a profession for women is gaining in popularity; there is at least one admirably-managed Horticultural College for training women gardeners, at Friedenau, near Berlin (Principal, Frl Dr. Kastner), which I had the pleasure of visiting last June. It is doing excellent work, and has proved most successful.

But, generally speaking, the cultivated German woman views with envy and admiration the advantages possessed by educated Englishwomen, the variety of scope and aim which distinguishes their work, the liberal education open to all who desire it, the comparative freedom and independence of their lives, their importance and influence as intelligent and reasonable members of the community, their knowledge of the world and affairs, and, last but not least, the tolerant attitude of public opinion towards

their actions. Let an ambitious, dissatisfied, restless Englishwoman spend some time in Germany studying the woman's question if she would learn to be contented with her own lot. A German lady, a delegate at the Women's Congress held in London last July, told me that nothing surprised and impressed her so much as the active share taken in the business of the Congress by ladies of high social position in England. That ladies of high rank should be interested in, and sympathise with, all questions dealing with women's education and employment seemed to her amazing. The same class in Germany still stand practically aloof, and know little of what concerns the position of women beneath them in rank. When a German Archduchess was told of the part taken by English women of title in the Congress, she could hardly express her astonishment and incredulity. English people are so accustomed to it that they take it as a matter of course that Duchesses and Countesses should lend their houses for educational purposes, and should take an active share in all social and philanthropic work. What is viewed with perfect equanimity in England would arouse astonishment in Germany. This is only mentioned as an illustration of the attitude of popular opinion towards women's work in England as compared with Germany. In England it is regarded as a question of almost national importance, with which all classes of society are concerned, and is a subject of interest to all.

The German system of secondary education for girls may be said to be adapted to the less complex social conditions of the country where women are not expected to play so obvious a part in influencing the current of public life and politics, as they do to a comparatively large extent in England. In Germany a woman's place is emphatically in her own home. Her attention is concentrated upon her own family life, the duties of which she fulfils to perfection. Intelligent and well read as she often is, the range of her interests is somewhat narrower than that of the really cultivated Englishwoman. That a rich and clever woman, free from home ties, should take an active share in the public business of her country, should, for example, be member of a Board of Guardians, should canvass for votes, or should be regarded as an authority where the education of other women is concerned, causes surprise to the average German woman. Generally speaking, she takes a smaller part in, and is less interested in the politics and public affairs of her own, and of other countries, than the average Englishwoman. There are, however, many notable exceptions, many German women of distinguished ability, authorities on education, art, social questions—many who possess remarkable capacity for accurate scholarship, fully as great as that shown by any Englishwoman. But the best type of intellectual and cultivated Englishwoman is not necessarily the product of a High School and University training. She has grown up amid cultivated surroundings, in an atmosphere congenial to intellectual life; she has had the privilege of a liberal education of the truest kind: school and university

may have aided, but they alone would be powerless to achieve such a result. The German attaches such importance to mental discipline and training that it would appear as if he believed that, given certain favourable conditions, a certain result is sure to follow. Yet something more than a school and college training (excellent as far as they go) is required in order to produce the cultivated, reasonable, and wholly delightful type of woman. Higher School, 'Mädchengymnasium,' and the rest may, indeed, help towards the desired result. But a critical period comes when the schooldays are over. A great responsibility rests upon those under whose influence a girl comes at this the most impressionable period of her life. To encourage her to read independently, and to think out questions for herself, to appeal to her good sense and power of judgment, to train her in self-reliance and self-control, to give her scope for her energy, a definite object in life, will procure for her new sources of happiness, and, at the same time, help to make her a more interesting human being. The care of the State is for the great mass of the population, it cannot take the individual into account. It rests with those who carry out its regulations and whose advice is sought in reforms and changes, to put a liberal interpretation on the term 'education' for girls, to recognise what a noble work is put into their hands, and that with them it largely rests to raise the whole level of intellectual culture among women, not only in Germany, but, by their example, throughout the human race.

MARY ALICE LYSTER.

January, 1900.

(*For the New Regulations, July* 1900, *see Appendix V.*)

APPENDIX I.

"Frequent petitions have been addressed to the Government asking that all the Higher Schools for Girls which conform to the 'Maibestimmungen of 1894 should be placed under the immediate control of the 'Provinzial-Schulkollegium.' To such a wholesale disposal there are objections which could only be removed by legal enactments. Therefore further action in this direction must be postponed for the present. In future, only those public Higher Schools for Girls which have a fully equipped 'Seminar' connected with them will be placed under the authority of the 'Provinzial-Schulkollegium.' For to divide the control, by assigning the school to the 'Regierung' and the 'Seminar' to the 'Provinzial-Schulkollegium' is an unsuitable arrangement, and it must be altered where it at present exists. Where public Higher Schools which agree with the definition of the 'Maibestimmungen,' 1894, are still under the control of the 'Kreisschul inspector,' they are, if the governing body desires the change, to be put under the control of the 'Bezirksregierung' instead." (*Ministerial Rescript of August 9th, 1899, on the subject of Secondary Education for Girls*). See pages 219 and 241.

APPENDIX II.

In a *Ministerial Rescript on the subject of Secondary Education for Girls*, dated August 9th, 1899, and addressed to the 'Regierungen' and 'Provinzial-Schulkollegien,' the late Minister of Education, Dr. Bosse, calls the attention of the local authorities to certain important questions which have arisen in the carrying out of the 'Maibestimmungen' of 1894.

Dr. Bosse says he had fully recognised the justice of the claim made by women teachers to take a larger share in the instruction given in the Senior Classes of Public Secondary Schools for Girls, and he had established the 'Wissenschaftliche Lehrerinnenprüfung' in order to qualify them to do so. He then goes on to say: "In many places scruples, by no means justified by experience, still exist on the question of granting to women teachers their due share in the education of girls in public schools. It is an indisputable fact that, especially in the early years of development, the influence of the woman teacher cannot be dispensed with, and cannot be replaced. During those years, to leave the education of girls chiefly or exclusively in the hands of men would be unnatural. Instruction and moral training are inseparably united in our schools, which are to educate by means of instruction. The influence of women teachers upon growing girls cannot be exercised to the extent desired until a share of teaching in the senior classes, larger than is usual at present, is entrusted to them. The teaching of the so-called ethical branches of study can also without hesitation be given to these women who have proved that they are equal to their task from the scholastic as well as from the moral point of view. I am glad that the results of the 'Wissenschaftliche Prüfung' show that a large number of excellent teachers are fitted to instruct, not only in Foreign Languages, but in German, History, and Religious Knowledge in the senior classes.

"We may take it for granted that the 'Fortbildungskurse,' which are being actively promoted in Berlin, Göttingen, Königsberg, Münster, and Bonn, will be able to provide a increasing supply of highly competent teachers to fill every vacancy. To acquire such teachers for the senior classes ought hereafter to be an easy task for the larger towns. I have full confidence that the earnest endeavours of women teachers, combined with the excellent work which they are doing, will be able to conquer the doubts or prejudices which still exist in some places with respect to their employment in the senior classes. I therefore hope that an increasing number of governing bodies will, in the interest of their schools, always be willing to give leave of absence and pecuniary aid to able

teachers in order that they may benefit by the 'Fortbildungskurse,' and, when necessary, I shall gladly help them as far as possible." So much for the teaching by women in the upper forms.

Near the end of the same *Rescript* Dr. Bosse says, in reference to elementary teachers in a Girls' Higher School, *that those men only who have passed the examinations qualifying them to teach in a Higher, or in a Middle School, can in future be employed as teachers in a Higher School.* Men who possess only the qualification for Elementary School teachers shall not in future be appointed to teach in the junior classes of a Higher School, as has often been the case hitherto. "In a girls' school it is better to entrust the initiation of beginners into the life and work of the school, and their instruction and guidance during the earlier school years to the care of skilful women teachers, whose feminine mind and perception are naturally more in sympathy with the nature and needs of the little ones. I am glad to find among the younger women many who by their personality are especially suited for teaching children." It is needless to comment upon this recognition by the highest authority of the value and importance of women as teachers at all stages in a Higher Girls' School in Germany.

APPENDIX III.

Note on Teaching of Natural Science in Higher Schools for Girls.

The teaching of Science in girls' schools in England is attracting so much attention at present, and is deemed of such importance, that it seems desirable to give a short account of the aims and methods of teaching this subject in secondary schools for girls in Germany, together with a translation of that portion of the official Prussian Regulations for Girls' Schools which deals with it. The reader's attention is specially called to the "Remarks on Method" on page 74.

The Official Prussian Regulations.

"A. General Aim.

(1) Natural History: The close and thoughtful observation of Nature. Elementary notions of structure and the most important physiological phenomena of animals and plants, of the mutual relations of the different living creatures and their relation to man. General laws of health.

(2) Natural Science: To impart by means of experiments, an elementary knowledge of the chief laws and processes of Physics and of Chemistry, especially of those which are most important for domestic and social life, and which help to determine the progress of civilisation in these days.

B. Programme of Work.

Class VI. Two hours a week.

Description of simple flowering plants actually before the pupil. Explanation of the most important parts and forms of the roots, stems, leaves, flowers, and fruits. Fundamental conditions of the life of plants. Description of some important native mammals and birds, in relation to form, colour, and size from specimens at hand, or illustrations if sufficiently large, together with information about their mode of life their usefulness, or their harmfulness.

CLASS V. Two hours a week.

To extend and supplement the work of Class VI. with the addition of the study of reptiles, amphibious animals, and fishes. Fundamental principles of anatomy of human beings.

CLASS IV. Two hours a week.

Comparative description of the related genera and species of flowering plants from actual specimens. Biology of plants. Poisonous plants. The lower animals, particularly the useful and the harmful, as well as their enemies, with especial reference to insects and their significance in the economy of nature. The commonest minerals of every-day life according to their appearance, extraction, and value.

CLASS III. Two hours a week.

The most important cultivated plants and their uses. Fundamental principles of the anatomy and physiology of plants. The most important facts about cryptogams and the diseases of plants. The structure and physiology of the human body, with instruction in hygiene.

CLASS II. Two hours a week.

The principal chemical processes, with special reference to mineralogy and geology. Physics: Heat, magnetism, electricity.

CLASS I. Two hours a week.

Equilibrium and motion of solid, fluid, and gaseous bodies; sound; light.

C. REMARKS ON METHOD.

In view of the wide extent of ground to be covered in these subjects, and the comparatively small amount of time that can be given to them, very great care must be exercised in making a suitable selection. The aim of the teacher must be first of all to guide the pupils to observe and to think for themselves, and carefully to avoid overburdening them with mere memory work. Experiments and direct observation are in all lessons to take the foremost place. It is desirable to enable the pupils to carry out experiments themselves. No importance is to be attached to a knowledge of botanical and zoological systems and schemes of classification. The plants and animals which are of most importance for human civilised life are to be put in the most prominent place; natural objects in the vicinity and their vital connections are first of all to be made known to the pupil. Natural objects themselves, when they can be procured, are to be preferred to illustrations. The instruction in anatomy and physiology of the human body, and in hygiene, is, on the one hand, to be given without diffidence, but, on the other, with due regard to feminine sensitiveness. In Physics, a mathematical treatment of the subject is only permissible when there is a natural connection with the teaching of geometry. A special text book for teaching natural science appears unnecessary. If one is used it must be suitable for a girls' school, short and clear, and must avoid all appearance of being a scientific treatise."

It is generally recognised by German educationists that the careful study and observation of Nature, of plant and animal life, not only afford a mental discipline of the utmost value, but are also an important aid in the formation of character. Some training, therefore, in the rudiments of Natural Science forms an indispensable part of the carefully-planned curriculum of a girls' school, care being taken that the symmetry of the curriculum is not disturbed by giving undue prominence to the subject. Natural Science in secondary schools is regarded as a single subject, and must be taught as far as possible as a connected whole, and not sub-divided into separate branches. If sub-division is necessary for purposes of convenience, the close relations existing between the different branches must never be lost sight of.* These must be taught in

* "They are not taught as distinct sciences, but as a means of assisting the individual to a more complete realisation of his surroundings."—J. F. Russell Ph.D., *German Higher Schools*. Longmans.

connection with each other, so as to train in the pupils the faculty of observing, of describing accurately, and of drawing logical conclusions from observations and experiments.

It being distinctly understood that the Natural Sciences are to be regarded and treated as one subject, the order in which the different parts shall be taught is clearly indicated in the official Prussian programme. The parts, or groups of parts, which are most closely related to each other are taken together or in succession. For example, it is generally agreed that to begin with the study of Botany is most convenient. Specimens are easily accessible, and can not only be seen but handled by the pupils. The study of plant life naturally leads to that of animals, and from thence the transition to the rudiments of human anatomy and physiology is obvious. The laws of health are studied; then follows an introduction to elementary geology and mineralogy, while, incidentally, some knowledge of a few of the most important chemical processes is gained. The course in Physics is strictly 'outline,' and includes study of the more remarkable phenomena, and the laws of its different branches, so far as this can take place without application of mathematics.

In view of the enormously wide range of this subject, very great wisdom must be shown in the choice of what is to be presented to the child. No exhaustive treatment of any branch is aimed at; on the contrary, it is not deemed possible or desirable to gain a thorough knowledge of the principles of any one branch of science while at school. To quote Mr Russell again: "To understand the relations existing between sciences is worth more than the extensive knowledge of any one."

In the best schools ample provision is made for teaching Natural Science. There are rooms specially built for the purpose, furnished with supplies of expensive apparatus, there are huge cupboards stored with specimens, botanical, zoological, and geological; illustrations, diagrams, charts are found in bewildering number and variety. Rows of benches, each one raised above the other, render it possible for all pupils in the class to follow every stage of the experiments performed by the teacher.

The time at the disposal of the teacher is very short, only two hours a week. This renders his difficult task still more difficult. It is true that the instruction given in the class-room is, when possible, supplemented to some extent by open-air work. Excursions are made in company with the teacher, and the children are encouraged to form collections, and to observe and describe what they see as accurately as possible. The opportunities for such excursions vary, of course, very much in different schools. In the official programme for the Prussian boys' Higher Schools, great importance is attached to detailed drawings of the objects studied, as the chief part of the descriptive work. No mention is made of this in the programme for the Girls' Schools, but it by no means follows that no drawing is done in them.

So far as the writer has had any opportunity of judging, the methods of teaching Natural Science in Girls' Schools are expository only. In the official programme attention is called to the value of experiments and to training the pupils to carry them out for themselves, but for want of time and for other reasons, there appear to be difficulties in the way of encouraging girls to undertake practical work. All experiments required to illustrate the subject, or principle, being studied, are made by the teacher himself. The apparatus which he uses is carefully explained to the class, and understood by them. They realise the object of the experiment, and are frequently questioned in order to see if they follow its course correctly. All difficulties are explained away by the teacher, so that the pupils may be able to repeat the experiment themselves. But they are not encouraged to make original investigations on their own account; indeed, independent work in the laboratory seems quite unknown to the German schoolgirl. To impart even the most rudimentary knowledge of the vast subject entrusted to his charge, a teacher of exceptional ability and enthusiasm is needed. Still, no matter how good the material and apparatus at his disposal may be, it is plainly impossible that in large classes, with only two lessons a week, much practical work can be done by pupils individually. It is true that, especially in teaching of Physics, the girls are given oppor-

tunities for handling the apparatus, and assisting the teacher in h demonstration occasionally, perhaps of repeating the experiment, but the work is always done under the guidance of the teacher, and never partakes of the nature of independent research. As the programme indicates, very little prominence is given to teaching chemistry; it is only studied incidentally in connection with the rudiments of geology and mineralogy. But no matter what the subject, the methods of teaching remain in essentials the same: the pupil is not expected to solve problems experimentally for her own pleasure; the school is not the place for independent study; it is the duty of the teacher to guide his pupils along the right path, to prevent them from drawing wrong conclusions.

The course of study appointed for boys is more comprehensive than that for girls, and fewer limitations are imposed upon the teacher. Some stress is laid upon practical work, and, doubtless, far more is expected of the boys than of the girls. Speaking broadly, though the aim of teaching differs, the methods are much the same. Apart from pedagogical considerations, the teaching of natural science to boys has the practical end in view that they may receive such a training as will enable them, when they enter the University, to study any science intelligently. But even in their case very little practical work is done in the laboratory while at school. Mr. Russell's remarks upon the comparatively small part played by laboratory work in science teaching in German boys' schools, and the reasons for this, are of special interest here. He says: "The presence of splendid laboratories in most German schools shows that the present method of science teaching is a reaction against earlier notions concerning the function of laboratory practice. So long as the aim was to teach the sciences *per se*, laboratory work was necessary for each individual, but with the advent of the idea that the sciences are no more to be considered independent studies than any other subject of the curriculum, and that mental development of the pupil is of more consequence than definite information upon any one subject, class instruction comes to the foreground. Laboratory work is still deemed an exercise of great value, *but its aim is to facilitate application rather than to promote individual investigation.*" And, again, "Laboratory work, if done at all, is introduced so that pupils may duplicate the experiment performed by the teacher, or make other demonstrations putting to practical test the knowledge just acquired. The function of laboratory practice is to make application of facts already learned, not for the purpose of preventing new truths or arriving at new deductions."*

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* J. E. Russell, Ph.D.: *German Higher Schools.* Longmans.

APPENDIX IV

LIST OF BOOKS.

The following list of a few of the books and pamphlets consulted by the writer of this paper may be found useful for reference by students of the subject :—

Bestimmungen über das Mädchenschulwesen, die Lehrerinnenbildung und die Lehrerinnenprüfungen vom 31 Mai, 1894. (Hertz.)

Ordnung der Reifeprüfungen an den höheren Schulen. (Hertz.)

Lehrpläne und Lehraufgaben für die höheren Schulen. (Hertz.)

Die in Preussen geltenden Prüfungsordnungen für Lehrerinnen. (Weber.)

Prüfungsordnungen für die Kandidaten des höheren Lehramtes. (Hertz.)

Statistisches Jahrbuch der höheren Schulen. (Teubner.)

Handbuch des höheren Mädchenschulwesens : Dr. Wychgram.

Ziele und Wege der höheren Mädchenschulbildung : Prof. Dr. Ritter.

Von Weimar zu Weimar, 1872–1897 : Dr. W. Nöldeke.

Entwickelung und Stand des höheren Mädchenschulwesens in Deutschland : Frl. H. Lange.

Die Mittelschulen im Grossherzogtum Baden : Joos.

Knabenerziehung-Mädchenerziehung : Dr. Lüngen.

Der mündliche Vortrag und seine Pflege im Schulunterricht : Dr. Hessel.

Reports of Transactions of the "*Deutsche Verein für das höhere Mädchenschulwesen.*"

Files of *Die Mädchenschule* (ed., Dr. Hessel).

Files of *Zeitschrift für weibliche Bildung* (ed., Dr. Buchner).

Yearly Reports of a large number of the most important Girls' Secondary Schools and Training Colleges for Women Teachers in Germany.

German Higher Schools : J. E. Russell, Ph.D. (Longmans.)

APPENDIX V.

NEW REGULATIONS FOR HIGHER EXAMINATION FOR WOMEN TEACHERS.

Since this paper was written new Regulations for the Higher Examination for women teachers (Oberlehrerinnen-prüfung) have been issued by the Education Department at Berlin* These will come into force in April, 1901, and and will cancel and take the place of the former Regulations contained in the "Maibestimmungen" of 1894. By the new Regulations the standard of the examinations will be raised, their scope and the subjects proposed are more clearly defined and dealt with more in detail, and, on the whole, it may be said a distinct advance is marked.

In his preface to the new Regulations the present Minister of Education, Dr. Studt, remarks upon the steady progress of the higher education of women teachers since this examination was instituted seven years ago. The local school authorities have encouraged their best teachers to enter for it, and have often made it possible for them to attend the necessary *Fortbildungskursen.* Ninety-five candidates have passed the examination, and only six have failed—a very small proportion. The majority of students—sixty-one—chose German as one of their special subjects. Next to this came history, with thirty-eight candidates; English, with thirty-five; French, with thirty-one; religious knowledge, with fifteen. Only seven candidates took mathematics, two natural science, and one geography.

Dr. Studt sees no reason to modify or alter the existing regulations as to the qualifications of candidates who desire to prepare for this higher examination. He will not allow women who have been educated only at the Gymnasium or University to enter for it. As before, the training of the Higher School and *Seminar*, together with five years' practical experience in teaching, will be required of all candidates before they begin the necessary course of special study. Dr. Studt believes that successful candidates will be quite as fit to teach in the upper division of Higher Schools as men who have received a University education. He says that five years spent in teaching will enable a girl to find out in what subject she is best fitted to specialize, will reveal her weak points, will indicate in what her earlier education is lacking, and will afford the best basis for intellectual studies afterwards when her mind is more matured.

It is not possible to assign limits to the time to be spent in attending lectures for the examination. All depends upon the subjects chosen, the student's previous knowledge of them, her mental capacity, and the mode of teaching. It is certain that four or five semesters (about two years and a half) will be necessary, and perhaps longer.

Dr. Studt then points out that the education received at the *Seminar* will need to be supplemented in many important respects before the candidate is fitted to enter upon a course of higher study. A fair knowledge of Latin and Greek will be found necessary for some subjects; in modern languages, fluency in speaking gained by living abroad; in German a wide acquaintance not only with German literature, but also with the greatest English and classical authors (in translations); in history, familiarity with the works of some great historian. A beginning must have been made in science and mathematics, some practical work accomplished in physics and chemistry; in short, it is plain that a large portion of the five years intervening between the first examination and the com-

* See the July and August number of the *Centralblatt für die gesamte Unterrichts-Verwaltung in Preussen.*

mencement of the preparation for the second, must be spent in private study and working up the subjects in which the candidates intend to specialise hereafter.

Dr. Studt will not interfere in any way with the work being done in the various *Fortbildungskursen;* he fully recognises its value, and will lay down no rules to regulate it. He recommends that as much freedom as possible shall be allowed to the students, and that they shall be encouraged to work independently, and be trained in habits of self-reliance. No examination in pedagogy is prescribed, though students are advised to extend their knowledge of the subject by private reading. Finally, Dr. Studt observes that though the standard of the examination is raised, he believes, from experience, that it will not be found beyond the reach of able students.

The above is merely a brief abstract of Dr. Studt's remarks, which form instructive reading for those who are interested in the subject.

The new Regulations are, as has been said, much more detailed and more definite in purpose than the old. The aim of the examination, the mode of conducting it, the place, date, conditions of admission, the subjects, the qualifications of candidates, are clearly stated. There are several slight alterations which, however, are not of sufficient interest to English readers to dwell upon. The changes in the curriculum call for some remarks. There are nine subjects, or groups of subjects, from which *any two* may be chosen for study by the candidate. The subjects are: Religious Knowledge, German, History, French, English, Geography, Mathematics, Botany and Zoology, Physics and Chemistry, together with Mineralogy, a more extensive curriculum, it will be noticed, than formerly. The examination itself is, as before, in two parts, written and oral. Only those candidates who satisfy the examiners in the written work will be admitted to the oral examination. In future at the oral examination each candidate must show that she has some knowledge of History and of Philosophy, of the outlines of Logic and Psychology, and that she has read and understood some important work on Philosophy. Although a free choice of subjects is left to the candidate, certain combinations of them are suggested as being most useful for educational purposes.

It is not possible to quote here the course prescribed in each subject; it is enough to say that the work is extremely comprehensive, and, at the same time, extremely thorough. Success at the examinations will imply a high standard of mental attainment in the students. A candidate who fails to pass is allowed, after a year has passed, to take the examination once more. If she is again unsuccessful, a further attempt will not be permitted. The successful candidate receives a certificate, in which all particulars about the examination, the subjects taken, and degree of success attained in each, are clearly stated. This certificate at once qualifies the holder to be appointed teacher in the upper division of a public Higher School for girls. Those who desire an appointment as Head of a school have still the *Vorsteherinnenprüfung* * to pass, if they happen not to have taken it before the Higher Examination. This accomplished, and further necessary experience in teaching gained, there is now nothing to legally disqualify women for promotion to the most important posts in secondary schools for girls in Germany.

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* See Section VII. above.

THE SMALLER PUBLIC ELEMENTARY SCHOOLS OF PRUSSIA AND SAXONY.

WITH NOTES ON THE TRAINING AND POSITION OF TEACHERS.

THE SMALLER PUBLIC ELEMENTARY SCHOOLS OF PRUSSIA AND SAXONY WITH NOTES ON THE TRAINING AND POSITION OF TEACHERS.

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SUMMARY.

THE SMALLER PUBLIC ELEMENTARY SCHOOLS OF PRUSSIA AND SAXONY; WITH NOTES ON THE TRAINING AND POSITION OF TEACHERS.

PRUSSIA.

I. HISTORICAL SURVEY.

Every Elementary School system is an organic growth, a product of political and economic history, as much as any other feature of national life; and that of Prussia, shaped by forces other than those which are potent in England, has taken a characteristic outward form little in harmony with the traditions and needs of this country. But it is much older than our own; it has long been supported by a conviction not yet rooted in our soil that Elementary Education is an essential factor in national progress. It has far greater inward unity, because educational principle is much more settled and more widely diffused, and the general acceptance of a definite aim and plan shuts out the disturbing agency of fluid and vacillating opinion. At the same time, its very age is responsible for some difficulties of a traditional nature and not incidental to more modern growths. Contrasts present themselves at all points; and the Prussian system is fruitful in interest and suggestion, not because it resembles, but because it is unlike our own, both in its past history, and in its existing merits and defects.

Luther's famous letter of 1524 exhorted the councils of all German towns to show much diligence in the care of the young; and in the two hundred years which followed various attempts were made to establish a system of schools, without definite result. The first school law dates from Frederick William I., who in 1717 ordered that all children should attend school, *where schools existed*, every day in the winter, and in summer at least one or twice in the week. The fee was fixed at 5 pf. (½d.) a week. In 1736 edicts requiring the establishment of schools were issued, not however for the whole Monarchy, but for certain provinces, and in 1737 the King granted 50,000 thalers for the support of education. Frederick the Great followed in the footsteps of his father. The "General-Land-Schul-Reglement" of 1763 ordered that children should go to school when five, and stay as a rule till thirteen or fourteen, or till they should have acquired a sufficiency of knowledge. The teacher's salary was based upon fees, which were in winter 6 pf. a week till the child could read, then 9 pf., and 1 groschen (or 12 pf.), when it could read and do Arithmetic. In summer the fees were reduced to two-thirds of these amounts. Punishment for non-attendance,

the examination and supervision of teachers, the course of instruction, the character of the reading books, and the assistance of very poor children, were points carefully provided for; and it is upon the general lines of this Order that the Prussian system has ever since proceeded.

But these enactments were obviously one-sided. They prescribed obligatory attendance without imposing the corresponding obligation to provide schools. This defect was remedied by the "Allgemeines Landrecht" of 1794, which laid the duty of providing and maintaining schools upon the heads of houses (Hausväter) in every place. This law prescribes the completion of the fifth year as the age for going to school; but it mentions no age whatever for leaving it. "Instruction must continue until a child in the opinion of his spiritual pastor has acquired the knowledge necessary for a person of ordinary capacity in his own station of life." The democratic movement of the end of the eighteenth century led to the abolition of serfdom and the grant of self-government to the towns; the experiences of the Napoleonic years of trouble brought with them at any rate this advantage, that they directed the eyes of the Government to the point from which the new birth of Prussia must begin. Even during the war, Frederick William III. had sent Germans to Switzerland to study in Pestalozzi's school, and had imported foreign teachers from abroad. Measures for the organisation of school affairs followed in rapid succession. In 1811 and 1812 Schulvorstände were appointed for the country, and Schuldeputationen for the towns. In 1817 the State business of Education was transferred from the Home Office to a separate Ministry. And in the same year the King promised a general Education Law. This promise was not carried out; and though repeated in the Constitution of 1850, it still remains unfulfilled.

The year 1825 is the date of a Cabinet Order of Frederick William III. imposing the obligation to attend school in a somewhat stronger form, and extending it to the new Provinces; and from this date it may be said that effective compulsion has existed in Prussia. In the same year the duties of the Regierung and of the Provinzial-Schul-Kollegium were defined. In 1850 the Act of Constitution declared teachers civil servants, and elementary education free; but the general abolition of fees was not carried out until 1888. Complaints in the Landtag in 1859 led to alterations in the character and amount of the religious instruction: and a Commission which reported in 1862 brought about a resolution of the House in favour of local self-government, of appointment of teachers by the localities, and of the employment of experts instead of Churchmen as inspectors.

But the most momentous event in recent years was the passing of the Schulaufsichtsgesetz in 1872, which re-asserted the absolute right of the State alone to the supervision of the schools. It had become necessary, in consequence of the declaration of Papal infallibility in 1870, to guard against a threatened *imperium in imperio* by the distinct limitation of the authority of the clergy, which had hitherto been paramount. In

the autumn of the same year appeared the Allgemeine Bestimmungen, of which the distinctive features were a further reduction of the amount of time to be devoted to religious instruction, and a much higher tone with regard to education generally. This brief Code is still in force, though its provisions have in some details been modified by subsequent orders, and supplemented by the instructions issued through the provincial authorities.

The periods of greatest activity in this long history are those which followed upon great national events—the Napoleonic wars, the revolutionary period of 1848, and the war of 1870. The development of the training colleges has followed a similar chronological course. The earliest was founded in 1748, and only twelve were established in the eighteenth century. Fourteen were founded between 1811 and 1828, twenty between 1846 and 1870; and the increase in the number of students since 1870 has been 135 per cent (as against an increase in population of 29 per cent.).

A contemporary picture of the state of education in 1804, by Karl Wilhelm von Türk, gives a woeful impression of its neglected condition at that time, due no doubt in great part to the impoverishment of the country by war. In those parts of the country to which the Allgemeines Landrecht of 1794 did not apply, the provision of schools was extremely defective. Thus, in the Regierungsbezirk Aachen there was in 1824 a deficiency of 38,005, for a child population of 66,611. The position of the teachers was no less deplorable. In 1820 no fewer than 1,180 country teachers received less than 20 thalers a year. The growth of the Prussian system has not been the work of a day. A period of 181 years has passed since the first Royal Order for school attendance; the duty of providing schools has been imposed for 104 years; and compulsory attendance has been effective for 63 years in the greater part of the existing kingdom. That growth has been interrupted by war, complicated by additions of territory, and hindered by political strife—and it has not yet attained perfection. No general Education Law has ever been passed; varying provincial laws, ministerial and provincial edicts, Orders in Council, and decisions of courts of law, form a vast heterogeneous body of prescription, which is confusing and often uncertain in its operation. Political causes have led to the defeat of all the general Education Bills hitherto proposed, and though regular school attendance is firmly established, the need of an adequate supply of schools, teachers, and school apparatus, which is the logical corollary of compulsory attendance, has not yet really been met.

II. Administration of Rural Schools.

The central authority for Education is the Ministerium der Geistlichen, Unterrichts-, und Medizinal-Angelegenheiten in Berlin, the composition of which has been described in Vol. I. of "Special Reports on Educational Subjects," page 385. Under

the Ministerium stands first the Provinzial-Schul-Kollegium, the chairman of which is the Oberpräsident of the Province. The Schul-Kollegium consists usually of four or five Räte, some of whom (generally ex-directors of Training Colleges) look after the Seminare, while the others (generally ex-directors of Gymnasien) take charge of the affairs of the Gymnasien and Real-Schulen. Thus the Provinzial-Schul-Kollegium manages the higher places of education, and has few duties connected with the elementary schools.

Secondly, each Province is divided into Governments (Regierungen) for purposes of general administration; and in each Regierung there is a section (Abteilung II.) consisting of three or four, or sometimes fewer, Schulräte, which controls the elementary schools. These Räte are generally ex-directors of Training Colleges or ex-inspectors, and they are, like the Provinzial-Schulräte, the appointed and paid officers of the Government.

The officers immediately under the Regierung are the Kreisschulinspektor and the Landrat. Each Regierung is divided into several Kreise or districts, of which the Landrat is the administrative officer. His connection with the schools relates only to externals—buildings and repairs and such matters. The Kreisschulinspektor, who is appointed by the central office in Berlin, has to do with instruction, discipline, and organisation, and the whole management of the school, including the conduct of the teacher outside its walls.

Under the Kreisschulinspektor there is for every school an unpaid Local Inspector (Ortsschulinspektor), whose duties resemble those of the "correspondent" in England. He is almost always the local clergyman, unless, as is sometimes the case, especially in Catholic districts, he refuses or is considered unfit to discharge the duties of this office. The Local Inspector is the chairman of the Schulvorstand or Committee, consisting of prominent persons in the place, and of late years often including the Teacher. The duties of this Committee, elected by the Schulgemeinde, are not so much to supervise the interior working of a school as to deal with questions of attendance and maintenance.

The Schulgemeinde is a community which need not be coincident with the political community. It may be larger, if the children of several hamlets attend one school; or smaller, if there is more than one religious community within one place and the political authority allows them to raise funds separately.

Every person who pays taxes to the State has to contribute to the support of a school; and the aggregate contributions of the localities greatly exceed the grant from the State. The Teacher is a civil servant, and the subordinate officer of the Local Inspector.

Thus with a long chain of officials from the Minister to the Teacher, the system presents itself at first sight as purely centralised and bureaucratic. But there are some qualifications to this view. First, the locality has in numerous cases a greater or

less voice in the appointment of the teacher, which however must be confirmed by the Regierung; it also determines the amount of his salary, so far as regards any payments in excess of the legal minimum.

Secondly, the devolution of power to the Regierung, which administers school business by means of paid experts, relieves the central office of a vast amount of detail. It is the Regierung that receives the reports of inspectors, issues instructions to inspectors and teachers, and arranges many details of teaching, under the general limitations of ministerial orders.* The length to which prescription of syllabuses, time tables, and methods is carried varies in different places, and in some it may possibly go too far. But in some at any rate the teachers are specially called into consultation upon questions affecting their schools; and they all have frequent opportunities of expressing their wishes at the conferences which are regularly held under the presidency of the inspector.

III.—Inspection.

For purposes of school inspection each Regierung in a Province is divided into Kreise, which may or may not correspond with the political Kreise. Omitting Berlin, which has a special organisation, there are in Prussia 13 Provinces, with 35 Regierungen and 561 Kreise. The total population exclusive of Berlin was, in 1895, 30,187,819. So that the average population of a Regierung is rather over 862,000, and that of a political Kreis rather under 54,000. The number of Inspectors (Kreisschulinspektoren) is 1,263.

Of these 1,263 only 277 are full government officials † permanently appointed, with the status of civil servants. The other 986 perform their duties of inspection merely as a bye-work which occupies them three or four weeks in the year, and are removable at any time. They are mostly evangelical clergymen holding the office of "Superintendent" in the Church, and their ecclesiastical work is their main occupation. Their only qualification for their educational post is their experience during the six weeks which all candidates for ordination have to spend at a Training College. Their appointment under the Act of 1872 is a concession partly to the influence of the Church, partly to considerations of economy. It is only where special measures have been necessary in consequence (as in Catholic districts) of the attitude of the clergy towards the State, or of exceptional educational backwardness, or of great increase of population, that permanent inspectors have been appointed for country districts.

* In many subjects, the Regierung is thus able to adapt the syllabus to the circumstances of the locality. For an example of such adaptation, see the Geography course prescribed in the Coblenz Regierung below, p. 321.

† The Town Inspectors are included in this statement, but as officials paid by the towns, though technically appointed by the State, they are not full civil servants. They are returned as permanent officials in *Preussische Statistik* (page 50), but as Inspektoren im Nebenamt in the official *Centralblatt*.

Of this clerical inspection Dr. Rein says,* "It has in many ways hindered the development of the School, and called into existence and intensified an estrangement between Church and School, Clergy and Teachers." It is the object of frequent attacks in educational literature, and of bitter complaint on the part of the teachers.

Of the permanent inspectors about one-half are graduates, one-half have been teachers in Training Colleges, or Rectors (that is, Headmasters) of large elementary schools. All have been teachers in some capacity. If their teaching experience has been gained in higher schools (Gymnasien) they are sent to spend some months in a Training College as "guests" before beginning their official work, and at first they are provisionally appointed. The number of schools under the charge of a permanent inspector is not large; forty or fifty, including ten or twelve private schools, would be an ordinary total; but the unit of calculation is rather the "class" (in the German sense) than the school; and the inspection of a class, or perhaps two classes, is regarded as sufficient for a day's work. The inspector does not usually report on all classes every year, and his reports go to the Regierung, not, except in special cases, either to the Ministerium or to the school. But he has multifarious duties besides that of inspection, and he is unassisted, except that town inspectors sometimes have one or two clerks. Leave of absence for teachers, the supply of vacant posts, questions of discipline affecting teachers, and the efficiency of the Local Inspector, are all matters with which he has to deal. He has also to hold periodical conferences with teachers, which vary a good deal in number. In one district which I visited the inspector holds seventeen every year,—one Kreis-Conferenz at which all the teachers of the district assemble, and four in each of four sub-divisions of the district. The programme of each conference is the same:—

1. A lesson given by a teacher (Lehrprobe).
2. A discussion of the lesson.
3. A paper on an educational subject.
4. A discussion of the paper.

In other districts there are only four, and an educational picnic sometimes takes the place of one of them. The State defrays the expenses of the teachers, and it appears from the reports of the Regierungen that these conferences are regarded as very valuable.

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* In his article *Strömungen auf dem Gebiet des deutschen Schulwesens*, in Vol. 3 of "Special Reports on Educational Subjects."

IV.—Teaching Strength. Position and Characteristics of the Prussian Teacher.

In 1896 there were in Prussia 78,959 fully employed teachers in elementary schools, besides 39,944 not fully employed (34,270 for needlework, 4,659 for the religious instruction of minorities, and the rest for special subjects); the latter category need not be considered here.

Of the 78,959 fully employed teachers (all adults), 97·5 per cent. had been trained and had passed full examinations; 0·33 men and 1·10 women had passed no educational examination; the small remaining fraction had passed a special technical examination.

In England and Wales in the same year there were 56,712 certificated teachers, 25,393 uncertificated assistant teachers, and 12,838 teachers (women under Article 68), who had passed no examination. Thus, of 94,943 adults, approximately

60 per cent. were certificated (of whom rather over half were also trained);

27 per cent. were qualified by examination for assistantship;

13 per cent. were without qualification.

The proportion of men and women was:—

In Prussia—

—	Whole State.	Towns.	Country.*
Men - - -	87 per cent.	78 per cent.	92.5 per cent.
Women - -	13 ,,	22 ,,	7·5

In England and Wales (adults only):—

Men, 28 per cent.

Women, 72 per cent.

The proportion of teachers to children was, in Prussia (with 5,236,826 children), 1 to 66; in England (with 5,422,989 children), 1 adult to 57 children.

Thus the main differences between the teaching staffs of England and Prussia are (i.) that in Prussia only adult teachers are employed; (ii.) that nearly all are fully qualified, and very few untrained; (iii.) that the proportion of men is very much larger; (iv.) that the total number of teachers is much smaller.

* It is useful occasionally to give the Prussian figures for town and country separately; but the distinction between "Dorf" and "Stadt" is somewhat arbitrary, and the returns for "country" in the statistics include many schools in large Dörfer, and especially in suburbs of large towns, which we should call town schools. Of all elementary schools, 88 per cent. are returned as country schools; 12 per cent. as town schools.

Women are never placed in sole charge of a school. They are employed more in Catholic than in Evangelical districts, and more in towns than in the country. There is much interest in a passage from *Preussische Statistik* which gives the official view of women as teachers: "That boys and girls should always and in all subjects learn from teachers of their own sex, cannot be maintained. It is, in fact, most desirable that in girls' schools some subjects should be undertaken by men. And it would be no less advantageous that every boy in the course of his school-life should come into contact with the moral and intellectual guidance of women. That in many localities there is only a thin sprinkling of posts open to women, and that it is the Evangelical parishes which to such a disproportionate extent show themselves unwilling to go forward in this matter, is an evil which cannot be justified or palliated.

"We complain bitterly of the want of patriotic feeling in our broader social strata, and we would fain remove the mischief by means of patriotic speeches, festivals, and games. But so long as the women of those broader strata do not embrace the German Fatherland with their hearts, it is all love's labour lost.

"Woman is pre-eminently the vehicle of the national idea, but to this sentiment she must be trained; and it is well worth noting, that amongst those peoples whose patriotism seems to be most deeply rooted, any other training of the female sex than by means of female teachers is almost unheard of. It is true that men can upon occasion discourse at least as well, and perhaps with more fire than women, about the Fatherland, love of freedom, and the national sentiment; but it remains a fact that during the years of tutelage it is only from the views of which women are the exponents that the opinions and feelings of their own sex derive lasting impressions." It does not, however, strike a foreigner that want of patriotism is a Prussian failing.

As soon as a teacher receives a definitive appointment, he becomes a civil servant* with a right to the minimum salary and increments fixed by law, to a pension, and to a certain provision for his widow and children if he dies. He cannot be removed from office except for misconduct,† and this right he cannot in any case contract away. He may be, but seldom is, removed to another school by the Regierung "in the interests of the service," but his salary must not suffer. He can change his school if he wishes to do so, with the consent of the Regierung or the two Regierungen concerned. He is privileged in that he has security of tenure, position, and prospects, but as an official he has to conform strictly to orders; he is not at liberty to choose his school in his earlier years, or to take any appointment without the consent of the authorities.

There is nothing in Prussia which exactly corresponds to the

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* Not a full civil servant, but as he is paid partly out of other than State funds, "Mittelbarer Beamte." Rectors, however, and Tutors in the Training College, are full civil servants.

† Women who marry are considered to alter the conditions of their appointment, and they vacate office *ipso facto*.

office of Assistant Teacher, certificated or otherwise, in England. All teachers are alike officials, and to a great extent independent. In a school with two classes, the First Teacher usually has no authority whatever over the second. He is merely *primus inter pares*, and though he may influence his colleague, he has no power to direct him. The school is held together by the official instructions, by the general unity of the Teacher's training, and in theory at least by the oversight of the Local Inspector. A Head Teacher (Hauptlehrer) is often appointed for a school of three, four, or five classes; for a school of six or more classes a Rector must be appointed. The Hauptlehrer has some powers of supervision over the instruction in the classes of the other teachers, but his relation to them is still to be that of a guiding colleague (eines leitenden Kollegen).* The Rector has more authority, and takes the place (as the Hauptlehrer does not) of the Local Inspector.

No account is taken here of the partly employed teachers (for needlework, &c.) previously mentioned. The Hilfslehrer (662 men and 142 women), many of whom have passed the first examination, need not be considered, since they form only 1 per cent. of the total number.†

The assured position of the teacher is a very important point in the Prussian system, because it has much to do with the attractiveness of the teacher's office, and therefore with the maintenance of the teaching strength. As before stated, 87 per cent. of the teachers are men, and there is no difficulty whatever in filling the Präparandenanstalten and the Training Colleges. Wherever I have had any opportunity of enquiring, I have been told that the demand exceeds the supply of places. The reasons for this were thus summed up for me by a high authority:—

(1) The teacher's pay (especially since the law of 1897 came into operation) is not bad for Germany.

(2) He has a definite position, definite rights as a civil servant, and a fixed pension. His office is respected, and his position in villages is next to the clergyman's.

(3) He frequently makes an advantageous marriage in country places.

(4) There are no barriers. A teacher may become a Rector or a Schulrat. A Rector in Berlin gets £175 to £225 a year, with a house worth £40. The pay of a Schulrat is from £225 to £250.

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* "Steht neben den übrigen Lehrern als Berather, nicht über ihnen als Vorgesetzter." Instructions for Hauptlehrer in the Regierungsbezirk Merseburg, § 3.

† The "Helfersystem" (employment of monitors), which is often discussed in treatises as if in full vitality, is practically dead. I have actually seen only one trace of it, and repeated enquiries have brought the invariable answer that it is generally discarded, though perhaps a few very old teachers may still make use of it.

The following figures show (for 1896) the classes of society from which the teachers are drawn, according to the occupations of their parents:—

Parents Engaged in	Men.	Women.
Husbandry	34 per cent.	15 per cent.
Mining, building, and other industries	27 ,, ,,	28 ,, ,,
Trade	9 ,, ,,	18 ,, ,,
Professions or lower official positions	25 ,, ,,	32 ,, ,,
Other callings	5 ,, ,,	7 ,, ,,

Thus it is the agricultural class that contributes most largely in the case of men, the official and professional class in that of women.

The pay of teachers was originally derived entirely from school fees, and reference has already been made to the miserable pittance which many of them received eighty years ago. In 1888 fees were abolished, and a State contribution towards salary of £25 for the first master, £15 for others, and £7 10s. for mistresses, was granted in compensation. But in 1896 many salaries were still very low. The following table shows the range of total incomes at that date (including the estimated value of house accommodation and firing):—

	Men.		Women.	
	Town.	Country.	Town.	Country.
Under £45	2·59 p.c.	11·68 p.c.	10·62 p.c.	17·82 p.c.
£45 to £90	43·14 ,,	74·50 ,,	77·74 ,,	80·75 ,,
£90 to £120	28·03 ,,	11·18 ,,	11·33 ,,	1·43 ,,
£120 to £150	17·11 ,,	2·36 ,,	·31 ,,	—
Over £150	9·13 ,,	·28 ,,	-	—

The general averages were:—

	Men.	Women.
	£	£
Town	101	66
Country	68	57
Whole of Prussia ...	79	64

The law of March 3, 1897, establishes (1) a fixed initial salary (Grundgehalt), not including house, or church emoluments, of at least £45 for men and £35 for women. Teachers provisionally employed, or of less than four years' service, receive less by one fifth, provided that women are not to get less than £35 in any case;

(2) increments (Alterszulagen) of at least £5 for men and £3 for women, to be added every three years after seven years' service, with a maximum limit of £45 for men and £36 for women. Thus a man after thirty-one years' service must get at least £90, and a woman at least £71, besides house accommodation. But I have noted many cases in which the actual amounts are very much higher.

No statistics of the salaries paid under this law are yet in existence. It cannot fail to effect great improvement in those parts of the country, such as Ostpreussen, Westpreussen, Pomerania, and Posen, where the average country incomes from all professional sources formerly ranged in several Regierungen from £35 to £40. But, on the other hand, some of the better paid teachers are apprehensive lest the legal minimum should become the standard rate.

The teacher's duties as sacristan (Kirchendienste), to which reference has been made, are a survival of the old connection between Church and School. In 33·7 per cent. of the Evangelical schools they are permanently attached to the post of schoolmaster, and in many other cases they are optionally discharged by Evangelical or Catholic teachers.

A distinction is made between the higher duties, such as training the choir, playing the organ, and seeing that church and altar are duly ordered for service; and the lower, which include ringing the bells, opening and closing, warming and lighting the church, and keeping the churchyard in order. The latter are seldom discharged by the teacher personally, and the Ministry has ordered that they are in future to be severed as far as possible from his office; but he provides for their discharge by others. The higher duties he retains in his own hands. In some cases he reads the service in church on alternate Sundays. The average payment for Kirchendienste (which must be additional to the fixed minimum salary) is £16 a year for the whole country.

The land with which by old custom the country teacher is provided, in order that he may be able to supply himself with the necessaries of life, varies greatly in extent, and is not, like the Kirchendienste, a source of additional income. Its estimated proceeds are included in the Grundgehalt. The majority of teachers now let their land, but there are still some who farm it themselves, rising early in the mornings, and taking advantage of their afternoon freedom in summer. Many of them also, with the consent of the authority, undertake private teaching and other unofficial work.

The retiring pension, payable on the ground of health after ten years, and in any case at the age of 65, is of course a consideration of much importance. Beginning at $\frac{15}{60}$ of the teacher's salary, after ten years it rises by $\frac{1}{60}$ each year to $\frac{45}{60}$; a maximum of £30 is paid by the State, and the rest by the locality.

Provision is also made by the State for the family of a teacher who dies, to the yearly extent of £12 10s. for the widow, and

£2 10s. for each child if the mother is living; otherwise, £4 4s. the payment ceasing when the child reaches eighteen.

Another privilege which the teacher has hitherto enjoyed is in future to be curtailed. Till the present he has escaped with ten weeks of military training instead of two years. But in accordance with a Royal Order of 1895, every schoolmaster is from the year 1900 to serve for twelve months; and it has been necessary to prepare for this change by the establishment of extra classes in the Training Colleges.

It might perhaps be thought from a perusal of various instructions that the Schoolmaster is oppressed by extraneous responsibilities. He is expected to watch over and control the conduct of the children out of school, to arrange and take part in their festivities, and preserve good order, and to show interest in the continuance of their education when their school life is over. But he looks upon such duties as the incidents of his official rank; and if official rank in Germany has a social value, so also it implies a public position, by which private life is in great measure absorbed.

The German teacher has much more professional consciousness than his counterpart in England. He is a functionary of State, poor but proud, and almost as irremoveable as the State itself; a member of a body corporate; and so accustomed to the idea of the oneness of principle in education, that he regards prescription not as an interference with his liberty, but as the expression of an established conviction which he understands and shares. He is not allowed to teach till his mind and body are mature, and he is old enough to understand what teaching means. But from the first he sees set before him a clear educational aim, and a beaten track by which it is to be reached. Gifted or not gifted, he is always formed. Whatever the metal, the coin comes from the mint.

That there are admirable teachers in England, and many of them, is very certain. It would be strange if it were otherwise. But they are more the products of nature than the work of a system.

The English teacher is not necessarily certificated. If certificated, he may or may not have passed through a Training College; and in the latter case it is uncertain in what pædagogic principles his college puts its trust; how far it is a homogeneous organism, of which the Practising Schools form an essential part; or how far, on the other hand, it is a loosely knit concourse of various teaching forces, including a school or two which are conducted as the different Head Teachers think best, and in which the students make disconnected experiments rather than learn how to fit themselves into a course of instruction intended for the benefit of children. Or, if he has not been trained, no one is responsible for his ways, which may be good, bad, or indifferent, but in any case are fortuitous.

He has in most cases been a Pupil Teacher, and his circumstances in that capacity may have been favourable, or the reverse. His sympathies may have been hardened by premature

responsibility and strain, or he may have acquired ideas and practices which he finds it difficult to unlearn. The empiricism of early years tends always to persist.

In the exercise of his functions as a Head Teacher he is liable to distracting influences, side-winds which blow him out of the straight course. He may be led by considerations of grant to teach more subjects than enough, or, if he is capriciously disposed, to change methods or subjects upon slight grounds; and it is the consequence of payment by results that he is apt to think more of teaching than of training. He has neither the solidarity nor the steady aim of the German teacher.

The greatest strength of the latter seems to me to lie in his power of exposition and his appreciation of his own language and literature—a direction in which the average English teacher is perhaps least strong. It is impossible not to be struck on the one hand with his facility in expression, his ability to expound a piece of literature in all its lights, to discourse on a passage of History or a point in Geography or Science; and, on the other hand, with the care he takes to inculcate respect for the mother-tongue upon his pupils.

He has often a very heavy burden of work—more than he can possibly do well; but even when the state of his exercise books and other indications show that he does not adequately perform his whole task, he is nevertheless able to hold his class attentive as soon as he begins an oral lesson. The eager faces and engrossed expression of the children in the best schools impress themselves on the observer's memory.

In good schools he is another illustration of the truth that the personality of the teacher is what matters most. For though he always has a room to himself, and is so far at an advantage, he is very little helped by his environment. German school-rooms cover about the same area as class-rooms for 60 to 100 in England.* They are ceiled to the wall-plate, often low-roofed and extremely deficient in ventilation. They are well warmed, frequently indeed far too hot, but at any rate the children seem to work more comfortably in heat than they do in a low temperature with a free play of draughts. The desks are usually arranged eight or nine deep, and, if the room is oblong, in one block across it, so that the teacher has his raised platform at one end, with the children of all ages in an undivided group before him. A German teacher sees no inconvenience in this plan. It has grown up with the system, in itself excellent, of one room to one man, and it does not seem to cause him any particular difficulty. The bareness of the plastered walls is only relieved by two or three pictures—nearly always of a past or present Emperor, or of Luther, or of the Diet of Worms. The maps, which are kept folded, are few, usually very good in execution, but not always in serviceable condition. The illustrative apparatus is in general miserably scanty; cloak-rooms are seldom

* The length of a school room in Prussia must not exceed 9 metres. The area per child must be at least ·6 of a metre, or 6·3 English square feet.

found, but hooks for hats and coats are provided in the school-room itself. The playgrounds and office arrangements are certainly most indifferent.* Our English country schools are comparatively sumptuous as regards buildings and their condition, teaching apparatus, and premises.

V.—School Attendance.

The State takes cognisance of all elementary instruction, public and private. Private schools are systematically inspected, and the inspectors have power, though it is not often exercised, to inquire into the teaching of children in their own homes. In course of time the school age has become fixed at 6–14, not by any general law, but partly by separate laws affecting various parts of the kingdom, partly by the practice of the Regierungen as confirmed by legal decisions.

Children are admitted in the towns usually twice a year, at Easter and Michaelmas; and in the country once a year, at Easter. If a child's sixth birthday falls before June 1st, he has to go to school at Easter in the same year; if after June 1st, at the succeeding Easter. He is released from school at the corresponding date eight years later. Very few exceptions are allowed; but in rare cases a child is permitted to defer entry on account of bodily weakness or to leave in the course of his last year on the ground of poverty or other pressing circumstances. The total number of these exceptions is only 1·28 per cent. of the number of enrolled children.

The following figures give the statistics of attendance for the whole of Prussia, so far as available:—

Population in 1895	31,855,123		
A. Total number of children of school age ...	5,602,093		
B. Assigned to Public Elementary Schools ...	5,313,037	= 94·9	p.c. of A.
In attendance	5,236,826	= 98·49	p.c. of B.
Not in attendance	80,211	= 1·51	p.c. of B.
Of the children not in attendance there were—			
(1) Excluded through lack of accommodation		·04	
(2) Permitted to enter late or leave early		1·28	
(3) Excluded on account of bodily or mental weakness		·18	
(4) Absentees without leave		·01	
		1·51	
C. Taught in schools with the aim of the Public Elementary School...	57,803	= 1	p.c. of A.
D. Taught in higher schools or at home	227,253	= 4	p.c. of A.

There are no data at all corresponding with our returns of daily average attendance. As there are no grants dependent upon average attendance, there is no registration for the purpose of ascertaining it. The attendance register (Versäumnissliste) is a record of absence only. As a rule, at any rate in the schools

* These criticisms refer of course to rural schools only.

which I have seen, the names are not called, but the teacher merely ascertains by inquiry, in the course of the meeting, and not before it begins, what children are absent. I have only once heard the names called through. Lateness is rebuked, but the child is nevertheless considered to make an attendance.

Still there can be no doubt that attendance at school is, on the whole, extremely regular. The existence of compulsion in some form since 1717, and of effective compulsion since 1825, has had its effect. Public opinion is in favour of regularity. Parents understand their obligation to send their children; and they know that if they disregard it they will not escape speedy and automatic punishment. Every fortnight a duplicate of the pages in the register covered by the period is sent to the Local Inspector, who signs and forwards it to the Gemeinde-Vorsteher, or chief of local police. Generally one or two warnings are given to the parent, but no case of absence without excuse is passed over, and when a fine or corresponding imprisonment is deserved, it is inflicted by the police as a matter of course. The amount of the fine at present varies very much under different local laws. Fines are, however, seldom necessary, at all events in the country. One teacher told me that during his charge of his school (five years) he had had no case of fine; another had only one to record in twenty-two years; another, no case in fifteen years. Two or three notifications of absence without excuse in a year seem to be regarded as an average amount.

It must be remembered that unpunctuality is possible, and that many teachers do not observe the clock as our English teachers are obliged to do, though in the best schools the children are not late. And it is a very important fact in regard to attendance that German rural families live much more within the villages, and much less in scattered houses on the farms and roadsides, than English families. In answer to enquiries, I have almost always been told that the whole of the children live in the village; and the total number returned officially as having to go more than 2½ kilometres (rather over 1½ miles) is 202,320, or ·038 of the total in attendance. Again the *number* of schools in Prussia is much larger than in England, there being a considerably greater proportion of very small schools.* In 1896 there were 2,344 with less than 30 children, and 827 with less than 20 children.

Capricious change of school is practically obviated everywhere. If the parents change their residence a Form is filled up (Abgangszeugniss or Umschulungsschein), which sometimes states the class, attainments, conduct, and religious denomination of the child; the time during which he has attended, and his reason for leaving; sometimes the reason for leaving alone. Even so, if the change of residence is from one part of a town to another, the child generally has to attend the old school till the end of the term, that is till Easter or Michaelmas. Children are

* In 1896 there were in Prussia 36,136 schools, in England and Wales 19,848. The population of Prussia was 31,855,133, that of England and Wales 30,800,522.

assigned to particular schools, and may not attend any other without leave. A child attending the school of another Gemeinde pays a fee of 1*s.* to 2*s.* 6*d.* a month, but otherwise Elementary Education is free. The parents, however, except in cases of great poverty, have to provide books and slates and other similar necessaries.

Thus the teacher enjoys advantages which have not been yet attained in England. He is protected against avoidable irregularity and capricious migration. He admits children at fixed dates only, and he knows that he will retain them till their school age is over.

The advantages of the teacher are also the advantages of the child. If a scholar is obliged to change his school, he at any rate finds the same subjects being taught, the same, or nearly the same, point in the instruction reached, and similar principles and methods at work. A new school does not mean temporary confusion of his school life.

When he leaves school altogether he receives a leaving certificate (Schulentlassungszeugniss), which states his date of birth, religious denomination, period of attendance, attainments, and conduct. The teacher draws up this document, and the Local Inspector countersigns it. It is not such a report as the District Inspector could give, but much more complete and valuable. It takes account of a child's whole school career, of his whole intellectual and moral status. An inspector's report must necessarily be confined to the intellectual side, and to a very partial survey even of that. He may judge masses of children, but he can form no safe estimate of individuals that goes beyond a valueless minimum.

VI.—Types of Schools. Normal and Abnormal Classes.

There are no infants' schools recognised by the State in Prussia; but in towns there exist a certain number of establishments where children are taken care of, and rather employed (with more or less adherence to Fröbel's methods) than taught. These institutions are some of them private ventures, some of them supported by charity. At any rate they are inadequate, and the need of a better infants' school system is generally admitted; but the cost of establishing such a system on a basis of State support is at present regarded as deterrent.

The day schools (for children between six and fourteen) are the Public Elementary Schools (Öffentliche Volksschulen), where no fees are paid, and the Mittelsschulen and höhere Mädchenschulen, where fees are charged, and a higher course of instruction is provided. As the two latter classes are found only in towns, and have no counterpart in England, they need not be further noticed in this paper.

The Volksschulen are denominational *i.e.* Evangelical, Catholic,* Jewish, or mixed. Mixed (paritätische or simultane) schools are those in which the separate religious instruction of minorities is

* There are only 12 schools of other Christian denominations.

provided for by the employment of teachers of different denominations. In some Regierungen, *e.g.*, Coblenz, the paritätische Schule has given place to separate denominational schools, and there are in Prussia only 680 schools of this kind, in comparison with 24,487 Evangelical, 10,725 Catholic, and 246 Jewish. The Regierungen have to regard the religion of the place in the appointment of the teacher, and the religious instruction of small minorities is provided for. If ten or fifteen children in a school are of a recognised religion other than that which is taught in it, the locality has to provide for their separate instruction, either by bringing a teacher to them, or by sending them to a teacher. And if the parents do not profess a religion recognised by the State, they are obliged either to produce a written certificate that their children have religious instruction elsewhere, or to send them to receive that of the school.

No State system of continuation schools exists in Prussia. Such schools have been developed mainly in towns, by the municipalities and by employers of labour, and for the most part on technical lines. The total number of country continuation schools is only 850, with 13,000 scholars; but amongst advanced educationists there are many who desire a general system of compulsion analogous to that of Saxony and other German States.

The term "Klasse" does not correspond exactly with our word "Class." It means any group of children taught by one teacher at one time. In an *einklassige*, or "one-class" school, the whole school is the class. If the school has two classes, each of them includes children of various grades; and the greater the number of classes, the more the class and the grade become identical.

Not including 184 practising schools with 19,582 children, there were in 1896 in Prussia 36,138 public elementary schools with 5,236,826 children, and 78,959 teachers actually employed.*

Of these, in 1896, 22,410 schools, with 1,477,558 children (in 1886, 23,125 schools with 1,718,076 children) were *taught by one teacher*; that is, in 1896, 62 per cent. of the schools and 28 per cent. of the children (in 1886, 68 per cent. of the schools and 35 per cent. of the children). The school taught by one teacher therefore fills a large place in the educational economy of Prussia, and a still larger place if we consider the country alone. Of the 31,896 country schools, 21,867, or 68 per cent., were in 1896 taught by one teacher, against 74 per cent. in 1886.

Such schools are, with few exceptions, either one-class or two-class schools (Halbtagsschulen).† The latter are defined as "schools of which one section is taught in the morning and the

* The number of posts is 79,431. There were 472 vacancies at that date.

† Schools in three classes under one teacher have decreased from 72 in 1886 to 39 in 1896. Wanderschulen (schools with no teacher of their own, but visited by the teacher of a neighbouring school on certain days in the week) and Laufschulen (schools which a neighbouring teacher visits in winter, the children going to him *en masse* in summer) are now reduced to the negligeable number of 18, against 98 in 1886. Wechselschulen (of which there are only three) are very curious. In two of them the teacher changes his residence from one village to the other every three years. In the third, an Evangelical replaces a Catholic teacher every eight years.

other in the afternoon."* But the pure Halbtagsschule, according to this definition, is seldom found in Prussia. The type is usually more or less modified: and, as may be seen from a comparison of pages 284 and 29 of *Preussische Statistik* there is some uncertainty about the number of such schools. But the figures show (1) that the total number of schools under one teacher is slowly decreasing; (2) that in many of the schools under one teacher the single class has been divided into two, so that the number of Halbtagsschulen under one teacher has increased. But the latter are not the only schools in which the number of classes exceeds the number of teachers. A Halbtagsschule may grow too large for one teacher and be reorganised into three classes under two teachers; and similarly four (or five) classes may be established under three (or four) teachers.

Although it is obvious that the difficulty of teaching a class is proportioned to the variety of grades included in it, yet the normal maximum of a "Klasse" is fixed at 80 for a one-class school, and at 70 for any other. If in a one-class school the numbers rise above 80, it may either be converted into a Halbtagsschule or be provided with a second teacher. When the numbers rise above 100 a second teacher must be appointed.

But even these very high limits are not by any means always observed. In the absence of a general law, the procedure in cases of defective supply is tedious and complicated, and the Minister often finds it difficult to compel compliance. Consequently, there still remain numerous "abnormal" classes (though their numbers have decreased), as the following figures show:—

(*a.*) General return of abnormal classes:

—	Classes.	Per Cent. of all Classes.	Scholars.	Per Cent. of all Scholars.
1896 ...	17,165	18	1,320,515	26
1886 ...	25,535	34	2,333,373	46

(*b.*) Number of one-class schools with abnormal attendance:

—	1896.	1886.
With 81—100 children ...	1,622	2,812
„ 101—150 „ ...	388	1,751
Over 150 „ ...	10	152
	2,020	4,715

(*c.*) Number of abnormal classes containing over 150 scholars in one-class schools, or over 120 in other schools:

1896 ... ... 72, with 10,242 children.
1886 ... ... 590, with 84,503 „

* *Preussische Statistik* (1898), p. 279.

(*d.*) And in 1896 there were four one-class schools with over 170 children in each, and one four-class school with 808 children, or 202 to a class.

These returns, while they indicate a state of things which is far from satisfactory, and which would not be possible in England, point to very rapid improvement in the decade. Certain areas are still exceedingly backward. In the Regierungsbezirk Münster the proportion of abnormal classes was—

——	1896.	1886.
Towns	67 per cent.	89 per cent.
Country	51 ,,	83 ,,

Of the country classes in the Regierungsbezirk Düsseldorf, 56 per cent. were abnormal in 1896, (in 1886, 73); in Oppeln 51 per cent. in 1896, (in 1886, 71).

VII.—Interior Organisation of Schools.

Elementary schools in Prussia are divided into three Stufen or steps; in the lowest (Unterstufe) the child is prepared to receive instruction, in the next (Mittelstufe) he is grounded in the various subjects, and in the highest (Oberstufe) he is enabled to extend and apply his knowledge. According to the official theory he spends two years in the Unterstufe, three or four years in the Mittelstufe, and three or two in the Oberstufe. But the practice varies. The Unterstufe sometimes covers the first three years; or again, the Oberstufe the four last. The division is important, because the hours of work and the subjects taken are prescribed according to Stufen and not according to years. Within the Stufen there may, of course, be graded sections for particular subjects. But the key of the whole position in the smaller schools is the practice of grouping many different years for instruction; the syllabus is made very simple, and the hours are shortened for the younger children.

The subjects taken in elementary schools are—

Religion.
German (Speaking, Reading, Writing).
Arithmetic and the Elements of Geometry.
Drawing.
Realien { History.
Geography.
Naturkunde (Natural History and Elementary Science).
Drill or Gymnastics (boys only).
Needlework (girls).
Singing.

In large schools of six classes a Modern Language, Mathematics, Shorthand, Domestic Economy, or Book-keeping may,

with the permission of the authority, be taught. The time for these subjects may be found out of ordinary school hours, and presumably no curtailment of the hours assigned to the regular work is permitted.

The Allgemeine Bestimmungen prescribe the following division of hours:—

(*a.*) Einklassige Schule:

—	Unterstufe.	Mittelstufe.	Oberstufe.
Religion	4	5	5
German	11	10	8
Arithmetic and Geometry	4	4	5
Drawing	–	1	2
Realien	–	6	6
Singing	1	2	2
Drill (Boys) or Needlework (Girls)	–	2	2
	20	30	30

(*b.*) Schools of more than one class:

—	Unterstufe.	Mittelstufe.	Oberstufe.
Religion	4	4	4
German	11	8	8
Arithmetic	4	4	4
Geometry	–	–	2
Drawing	–	2	2
Realien	–	6	6 or 8
Singing	1	2	2
Drill (Boys) or Needlework (Girls)	2	2	2
	22	28	30 or 32

(Needlework is not begun until the Mittelstufe.)

It is provided, however, that when one teacher has two classes (Halbtagsschule), or two teachers three classes, the necessary modifications may be made. The only universal rule with regard to the Halbtagsschule is that 32 hours' instruction altogether must be given in the week.

In many, but not in all parts of Prussia, quite different time-tables are followed in the summer and winter half-years. Where this is so, the usual summer arrangement (in force, as a rule, from April 1 to October 1) is to dispense with afternoon school, and complete each day's work between 7 a.m. and 12, sometimes between 6 a.m. and 11 or 11.30. In order to avoid strain upon the children, the hours are shortened. The Einklassige Schule

is taught in sections like the Halbtagsschule, and the Halbtagsschule works on its ordinary principle with a programme that can be got through in the morning hours.

The following are time-tables actually used in different types of schools. It should be stated that some Regierungen prescribe the time-tables of the smaller schools, but allow deviations with the approval of the Kreisschulinspektor. In others the teachers construct their own time-tables, under the above limitation of hours for each subject, for the Kreisschulinspektor's approval. Time for recreation, though not shown, is regularly allowed. Home work, it should be remembered, is set to all children except the very youngest in all elementary schools, and is cheerfully done. It is, with much reason, thought that the habit of doing a little daily independent work out of school is well worth cultivating. Our own evening schools no doubt suffer because the scholars, accustomed as they are to work inside the school only, cannot be induced to supplement their short hours of instruction by a little private study.

A.—EINCLASSIGE SCHULE.

I.—Prescribed Time Table (Coblenz Regierung).

(Morning and Afternoon School all the year round.)

Morning.

Hour.	Stufe.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1st	U.	Religion and Writing	Religion and Writing	Object Lesson and Writing	Religion and Writing	Religion and Writing	Reading and Writing
	M. O.	Religion	Religion	Essay	Religion	Religion	Religion
2nd	U M. O.	Arithmetic	Arithmetic	Reading Composition	Arithmetic	Arithmetic	Singing Written Arithmetic Geometry
3rd	M O.	Geography	Reading	Naturkunde	Geography	Grammar	Naturkunde

Afternoon.

1st	U. M O.	Writing Reading	Reading Hand-writing	— —	Writing Reading	Reading Hand-writing	— —
2nd	U. M. O.	Reading Written exercises Drawing	Writing History	— —	Reading Drawing	Writing History	— —
3rd	M. O.	Singing	Drill and Needlework	—	Singing	Drill and Needlework	—

U. = Unterstufe. M. = Mittelstufe. O. Oberstufe.
Unterstufe, 20 hours. Mittelstufe, 30 hours. Oberstufe, 30 hours.

II.—Time Tables approved by Inspector (Potsdam Regierung).

(Morning and Afternoon School in Winter. Morning only in Summer.)

(*a.*) Winter Half-year.

Hour	Stufe	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8—9	U. M. O.	Religion	Reading and Writing Religion	Religion	Religion	Reading and Writing Religion	Religion
9—10	U. M. O.	Arithmetic	Arithmetic	Reading Grammar	Arithmetic	Arithmetic	Writing Dictation Geometry
10—11	U. M. O.	Reading Reading	Object Lesson Reading Writing	Object Lesson Writing Reading	Reading and Writing Reading	Object Lesson Geography	Object Lesson Writing Drawing
11—12	M. O.	Geography	Natural History	—	Essay or Dictation	Elementary Science	—
1.30—2.30	U. M. O.	— Needlework (Girls)	Singing	—	Object Lesson Reading	Reading	—
2.30—3.30	M. O.	Needlework (Girls)	History	—	History	Singing	—

Unterstufe, 20 hours. Mittelstufe, 30 hours. Oberstufe, 30 hours.

(*b.*) Summer Half-year.

Hour.	Stufe.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7—8	M. O.	Religion	Reading	Reading	Religion	Grammar	Religion
8—9	M. O.	Arithmetic	Geography	Arithmetic	Arithmetic	History	Natural History
9—10	U. M. O.	— Dictation Essay	Reading and Writing 20′ German 30′ Reading Singing	Singing	— Drill and Needlework	Reading and Writing 20′ German 20′ Reading	Reading and Writing Drawing
10—10.40	U.	Religion	Religion 20′	Religion 20′	Reading	Religion	Religion 20
10.40—11.20	U.	Arithmetic	Arithmetic	Object Lesson 20′	Arithmetic	Arithmetic	Reading 20′
11.20—12	U.	Reading	Reading	—	Object Lesson	Reading	—

Unterstufe, 14 hours. Mittelstufe, 18 hours. Oberstufe, 18 hours.

B.—HALBTAGSSCHULE.

Prescribed Time Table (Coblenz Regierung).

(Morning and Afternoon School all the year round.)

Morning.

Hour	Stufe.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1st	M. & O.	Religion	Geography	Religion	History	Religion	Natur kunde
2nd	M. & O.	Arithmetic	Arithmetic	Drawing	Arithmetic	Drawing and Geometry	Singing
3rd	M. & O. U.	Essay —	Reading and Grammar —	— Religion and Singing	Reading and Composition —	Reading —	— Religion and Singing
4th	M. & O. U.	Hand-writing —	Drill and Needlework —	— German	Hand-writing —	Drill and Needlework —	— German

Afternoon.

1st	U.	Religion and Arithmetic	Arithmetic	—	Religion and Arithmetic	German	—
2nd	U.	German	German	—	German	German	—

Unterstufe, 12 hours. Mittelstufe, 20 hours. Oberstufe, 20 hours.

In the winter half-year the Unterstufe attends in the third and fourth hours of the morning, the Mittelstufe and Oberstufe returning in the afternoon; so that the school is not for this period a pure Halbtagsschule. The three Stufen are never all present at once under this arrangement, and the Mittelstufe and Oberstufe always attend together. But this is not always so. In a Halbtagsschule of 121 children which I saw, the Mittelstufe is sometimes present with the Oberstufe, sometimes with the Unterstufe, and consequently receives more hours of instruction than either. In this case the Winter Time-table assigns to the Unterstufe 14 hours, to the Mittelstufe 30 hours, to the Oberstufe 21 hours. Similar modifications of the general rule occur when there are three classes under two teachers. In the Coblenz Regierung the apportionment of hours in that case is—Unterstufe, 12 hours; Mittelstufe, 26 or 24 hours; Oberstufe, 26 or 28 hours.

There is thus great elasticity as regards hours of work, and much accommodation of the school to outward circumstances. The

free afternoon in summer which so widely prevails is a largess to the parents, who utilise their children's labour only too freely.* But the Halbtagsschule, and the three-class school with two teachers, as well as the one-class school when the numbers are large, can only be regarded as makeshifts, the creation of exigencies not yet extinct. All these types are more or less defective. The one-class school keeps full hours, at any rate in summer, but the teacher cannot do justice to all the children. In the others, time is lost, even if the classes are brought within proper limits of size. More effective work, say the theorists, compensates for shortened hours. But at the best the defect is only shifted, not removed. And the remedy becomes fictitious when the normal limit of the class is approached or exceeded. For a Halbtagsschule, or a three-class school with two teachers, is still regarded as *normal* if there are 70 children to a class. And *abnormal* classes are not uncommon; there are 808 abnormal classes in Halbtagsschulen, and 1,099 such classes in three-class schools under two teachers. In such cases the three evils of shortened time, overburdened teachers, and over-large classes exist together.

VIII.—Aim of the Elementary School. Treatment of the Subjects of Instruction.

The true purpose of every school, to fit the child for the duties of the man, is nowhere more clearly enunciated than in German official and unofficial dicta on the Volksschule and its aim. This aim is, in the language of the latest definition,† "the religious, moral, and patriotic training of the young, and their preparation in the knowledge and acquirements necessary for the life of the citizen." First, religion and conduct, then social and political right-mindedness, then knowledge; and knowledge is to follow the path of practical usefulness. Special importance is attached to religious instruction; but "allgemeine Menschenbildung," the training of the whole man, is the object to be kept in view. No subject of instruction is an end in itself, but each is a means towards the greater end. "I regard moral uprightness," says a German teacher,‡ "as the cardinal point in the whole personal worth of a man." But moral teaching is not to rest upon religious instruction alone.

In other subjects also the German teacher, who has been taught to read sermons in stones, brings the ethical lesson to the front without artifice or effort. In Geography and in History the child is made to understand his home neighbourhood first, then his country; who its rulers and statesmen are, and what they have been in the past; how the State has by gradual steps evolved its greatness; the meaning of the German empire; the duties of the individual to the Gemeinde, and to the larger units of Government. In the Reading-books which he studies, and not

* In some towns, including Berlin, there is never afternoon school.
† Dr. Falk, 1877. Gesetzentwurf 1891, § 1.
‡ H. Keferstein. *Volksbildung und Volksschule*, Leipzig, 1896.

merely reads, he finds all the materials for the foundation of these ideas. In Natural History and Elementary Science he learns reverence for the works of Nature. In the respect shown to the Mother-tongue there is some element of patriotism.

Again, the unity of all knowledge is kept in view. German is not set up into disparate heads—Reading, Composition, Spelling, Recitation, and Grammar,—but treated as *one* study, the main end of which is clearness of ideas and their correct and fluent expression in language, to be practised and turned to use in all other studies. History, whether sacred or profane, is always History, in which the child may learn to see the hand of Providence at work, to admire what is noble, and despise what is base. And with it in close interdependence is linked Geography. "History is written on the wind," says Schleiermacher, "unless Geography is made its basis." The expansion of Head and Heart is the common aim, and Interest the common instrument, of all intellectual work.

It follows that a limited curriculum is sufficient. It is wrong to set high value upon the accumulation of knowledge, at the expense of ethical and intellectual thoroughness. Much detail in Geography and History, a large amount of reading matter, a free range of subjects, are not in themselves important. Teachers capable of thorough ethical and intellectual treatment of their work are the first necessity, men who know how to free themselves from all that is petty, and yet see that every detail needs care; then a choice of work that can really be done, and which forms a harmonious whole.

The practice of 'Wiederholung,' going again in summary over the ground of each lesson at the beginning of the next, is universal in German teaching, at the Training Colleges as well as in the schools,—a practice far too little prevalent in England. And the German teacher sees no harm, but rather good, in that repetition of work on a wider scale, which the almost unlimited grouping of different years involves. But it is difficult not to think that too much is often sacrificed in this way to real or supposed necessity.

It is to be remembered, in considering the treatment of the chief subjects of secular instruction, that nothing in the nature of payment by results has ever existed in Germany. There is no exemption standard, and extremely little premature withdrawal. Children must stay at school till a fixed age, and work may go steadily on without pressure or haste.

(1) *German.*

When the children first come to school they are about six years old. They learn four things only—Religion, German, Arithmetic, and Singing—so long as they remain in the Unterstufe—*i.e.*, for two or sometimes three years. German is limited to Anschauungsunterricht, and Reading and Writing. Anschauungsunterricht corresponds roughly to the object lessons of an English school, but the name is applied to the work of the Unterstufe

only. Its purpose is (1) to give the children right ideas about the things around them, beginning with the most familiar; (2) to awaken in them interest, attention, observation; (3) to teach them to clothe their ideas in right language. Though it forms an introduction to Realien, it is a German lesson as much as anything else, and in the course of it small poems bearing on the subject matter are frequently learnt. The following is a list of lessons drawn up for a two years' course. It will be noticed that the arrangement follows the course of the seasons as far as possible.

EASTER TO THE HARVEST HOLIDAYS.

First Year.	*Second Year.*
1. The Schoolroom and its Furniture.	1. Same subject.
2. Materials used in the school.	2. Spring.
3. The Dwelling-house.	3. Marsh-marigold.
4. The Sitting-room.	4. The Blind Nettle.
5. The Kitchen.	5. The Cuckoo.
6. Cellar and Rooms.	6. Cockchafer.
7. The Cat.	7. Boy and Bird's-nest.
8. The Mouse.	8. Housebuilding.
9. Farm Buildings.	9. Wayfarer and Lark.
10. The Stork.	10. The Summer.
11. The Farmyard.	11. The Harvest.

HARVEST HOLIDAYS TO MICHAELMAS.

First Year.	*Second Year*
12. Pug and Spitz.	12. The Corn Flower.
13. The Garden.	13. Gardening.
14. The Arbour.	14. The Butterfly.
15. Fruit Trees.	15. The Swallow.
16. Flowers.	16. Birds and Owl.
17. Vegetables.	17. The Frog.
18. The Village.	18. Fishes.
19. The Peasant.	19. Bees.

MICHAELMAS TO CHRISTMAS.

20. Mare and Foal.	20. Harvest.
21. The Goat.	21. The Fruit Harvest.
22. The Cow.	22. Shepherd and Flock.
23. The Sheep.	23. Dog and Goat.
24. Chickens.	24. Dog and Children.
25. Doves.	25. The Potato Harvest.
26. Ducks and Geese.	26. Vineyard.
27. The Swan.	27. The Peasant and the Tilling of the Land.
28. Church and Tower.	28. Fox and Duck.
29. River, Bridges, and Ships.	29. The Donkey.
30. The Mill.	30. Winter.
31. Water and Fishing.	31. The Fir Tree and Christmas.

CHRISTMAS TO EASTER.

32. The Raven.	32. The Goat.
33. The Forest.	33. Hare and Sportsman.
34. The Wild Animals of the Forest.	34. The Woodpecker.
35. Forest Trees.	35. The Wood-cutter and the Uses of Wood.
36. The Town.	36. The Squirrel.
37. The Yearly Market.	37. Snow and Ice.
38. Various Artisans.	38. Sliding and Skating.
39. The Bear.	39. The Snow Man.
40. The Elephant.	40. Horse and Sparrow.
41. The Lion.	41. Child and Ox.
42. Threshing.	42. The Railway.

In many schools, however, the same list of lessons is repeated year after year. The Allgemeine Bestimmungen nowhere prescribe a separate course of Anschauungsunterricht, and in many schools the Reading Lesson and Object Lesson of the youngest children are combined. Reading is taught, in the first year, either on the Normal-Wörter or on the Schreib-Lese method, or on a mixed method thought to combine the advantages of both. In any case it is taught together with Writing, and a little practice in making strokes in various directions on slates precedes the first attempts. The Normal-Wörter method proceeds from a discussion with the children of an object, the written symbol for which is afterwards placed on the blackboard and copied by the children. The order in which the objects are taken depends upon the suitability of their names for instruction in writing, and for dissection into sounds; and it is, therefore, by no means a good order for Object Lessons; but yet these discussions take the place to a great extent of Anschauungsunterricht when this method is used. In the words chosen each vowel and consonant has its full normal value, and each new word presents a new sound. Thus the first word is Ei (egg). An egg is exhibited and talked about at length. The word is written, in small letters only, and the children copy it. They are not told the names of the letters, and in fact do not generally learn them in their first year at all. The next word is "Eis." The teacher dwells on the "s" sound and asks the children what new sound they hear. So with "Seil," the next in order, which gives the new sound and symbol "l." Then "Maus" follows with the two new sounds "M" and "au," and so on, till all the sounds are mastered. The method is first analytical and then synthetical, and hence its name of "Analytisch-Synthetisch."

The Schreib-Lese method in its pure form discards the accompanying Object Lesson and the analysis of the word into its sounds. It is purely synthetic. Its advocates claim for it that it is easier and quicker, and that it has no tendency, like the Normal-Wörter method, to lead to spelling. Words are chosen in which the initial sound is prominent, and the vowels and diphthongs are learnt first. "Igel" gives "I," "Esel" "E," "Ei" the combination of "E" and "I." "Uhr" gives "U," "Eule" "E" and "U"; "Ofen," "O"; "Aal," "A," and so on. In all cases, only the one initial sound is attended to, and the symbol of it only is written. But each word is illustrated by a picture.

The combined methods are various. Some begin on the Schreib-Lese principle and continue with that of the Normal-Wörter. Some introduce the capital letters and the printed symbol with the written symbol from the first. But the principle of teaching by sounds only, and the rejection of spelling (which is expressly forbidden by the Code) is common to all these methods alike. There is, obviously, very great advantage in teaching Reading through Writing, and Writing through Reading, and in placing reliance on sounds instead of on letters: but the plan is far more easily applicable to German than to

English. Still a partial adaptation of this method to our language seems both possible and desirable. It is not necessary that the youngest infants should learn the names of the letters or the printed symbol, and it would certainly be well to simplify their instruction by the combination and unification of subjects as far as possible.

The amount of reading matter covered in the first year is always small, sometimes very small. I have found it as little as sixteen octavo pages of Primer (this was in a good school), or as much as 100. In the second year, either the Primer may be finished, or a new book may be read, so that in the first two years from 100 to 200 pages are got through. Transcription and reproduction of short sentences on slates are very extensively practised.

At the beginning of the third year, when about eight years of age, the child as a rule enters the Mittelstufe and takes up new subjects—Geography, History, Naturkunde, Drawing, Needlework. German now includes Reading, Writing, Dictation, easy Composition, and Grammar. Where there are two teachers, the third year children may have a separate reading book, but it is invariably the case, when there is only one, that the Mittelstufe and the Oberstufe read together in one book of about 500 pages; *and this book lasts the child six years.* But the German conception of the Book and its use differs widely from the English conception. "The reading book," say the Allgemeine Bestimmungen, "is the foundation of all instruction in German." It is to be so treated that its whole content may if possible be gradually mastered. It is to be used not merely for the purpose of teaching to read, but also as a means towards intelligent appreciation of the masterpieces which it contains." Thus the Book is the central subject of study round which other studies are grouped. No new book, or materially altered edition of an old book, may be introduced without the consent of the Ministerium itself. The reasons for this rule are principally educational, but partly also financial, for the children pay for their own books, and the poverty of the German home has to be regarded. I have been told many times that this latter consideration has something to do with the use of one book for so many years; but yet the greatly preponderant opinion is that no educational harm results. Teachers in general may perhaps be expected to defend a practice in which they have grown up, but it is one to which even the reformers who urge other changes appear to take no exception.

How then does it work out in actual teaching? The reading book contains stories and passages with a religious or moral tendency, pictures of German life, historical and geographical sketches; and it is divided into a shorter part of 120 or 130 pages for the Mittelstufe and a longer part (the remainder of the book) for the Oberstufe. It is well illustrated, and very carefully compiled, quite free from mawkishness and loose writing; the great majority of the pieces are taken from good authors; and

though the contents are solid, they are interesting and not too difficult.

Reading is either 'kursorisch,' *i.e.*, the rapid reading of a passage as practised in England; or 'statarisch,' the close and minute study of a passage from every point of view. Much more time is given to the latter than to the former. It is expected that 20 to 30 sections will be studied closely in the year, and 30 to 45 read rapidly. A short passage of half an octavo page suffices for three hours' study. It is first read by the teacher; then he discusses it, draws attention to its moral teaching, or any other special features; then it is read by the children in short pieces, and afterwards in longer pieces; reproduced and expounded by them orally, used for dictation and for writing from memory; or, if it is a poem, learnt by heart. The more rapid reading is resorted to chiefly for making fast the lessons in History and Geography and Naturkunde, after they have been given.

The sections of the book are not taken in order as they come, but are supposed to be so divided as to form a two-years' course. It is obvious that since children remain three years in each Stufe, they must in any case study some of the same passages twice over; and as the two Stufen take reading together, it constantly happens that the Mittelstufe merely listens while the Oberstufe reads, or *vice versâ*; or the Oberstufe reads the old matter over again with the Mittelstufe, so that time is wasted. But the close study of a certain amount of reading matter, given suitable pieces and a teacher who knows the way, teaches children to think and express themselves, and leaves behind it an impression of literary style. For evening schools it would be far more profitable, under capable guidance, than the prevalent practice of skimming a quantity of light matter. So much importance is attached to it in Germany, that teachers regard the careful preparation of the reading lesson as of the first importance. A young teacher expects to give two or three hours a day to preparation, an older teacher less. But however ample his stock-in-trade of lessons, he will not omit to prepare himself for next day's instruction in Reading and Religion. In England Reading is probably the one subject which is thought to need no preparation at all.

It might be suspected that under such a system little power of reading at sight would be acquired. But this is not so. Wherever I have tried classes in unseen pieces I have found the average result at least as good as it would be in England.

Another book is sometimes, but not by any means always, in the children's possession. This is the Realien Book, containing courses of History, Geography, and Naturkunde systematically treated: but it is used not for instruction in Reading, but for the study of these subjects independently at home or at school.

(2) *Realien.*

The amount of History, Geography, and Naturkunde expected of a small school is not large. These subjects are first attempted when the child enters the Mittelstufe. Their purpose is under-

stood to be primarily training rather than knowledge. Facts matter much less than moral impressions. It is not intended to produce "geistige Leichen," mere intellectual corpses. The problem of organisation is solved by wide grouping, and the method is that of concentric circles, which starts from the point nearest to the child's mind, and gradually widens the area of study; while in allied subjects, such as History and Geography, a parallel expansion is maintained, so that the one subject always bears upon the other.

History is in a special sense the vehicle of instruction in Social Ethics. A remarkable Cabinet Order of May 1, 1889, commands that this subject shall be used in the schools to stem the tide of social democratic ideas. "I cannot ignore the fact," says the Emperor, "that at a time when the errors and false doctrines of Social Democracy are being disseminated with increasing zeal, it is the business of the school to make greater efforts to further the recognition of what is true, what is real, and what is possible in the world. It must exert itself to bring home the conviction to the young that the teachings of Social Democracy are not only at variance with Divine commands and Christian morality, but are truly impracticable, and ruinous in their consequences to the individual and the community alike." The document further sets forth that the benefits which the Kings of Prussia have conferred on the working man, and the security which the people enjoy under a settled Monarchical Government, should be impressed upon the children; that the teaching of History must be brought down to the most recent date; that it must in the Volksschule be of the simplest character, and that the task of amplification must be left to schools of a higher grade.

Ministerial orders followed with detailed instructions in accordance with this command, directing *inter alia* that History must be begun in the Mittelstufe in schools, and that special stress should be laid upon the subject in Training Colleges, and in the second examination for teachers.

From the point of view of the German teacher, there is less harm in the grouping of many different years for instruction in Realien, and in the partial or complete repetition of work by the same children, than there must seem to be if the acquisition of knowledge is the principal aim; and the necessity for the adaptation of the work to the staff is always much considered. Accordingly, if there is only one teacher, the Mittelstufe and Oberstufe (comprising six years) are taught together, the latter sometimes, but not always, being taken into more detail than the former; sometimes the teaching is addressed to the Oberstufe, and the Unterstufe merely listen. The teacher knows that the work will come round again, and is satisfied if he gives the younger children a general impression for the moment. Listening and independent employments, *i.e.*, writing tables, or words, or copies, occupy a great part of the younger children's time in a small German school, and in no department of work more than in religious instruction, which is frequently given to the whole

of the scholars at one time. But it is clear, that as History and Geography are arranged in two-year courses, each course must be repeated three times. And here is still much repetition when there are two teachers, and the two Stufen take separate work. We may admit that there is excess in this direction, but we may yet question whether the English practice of concentrating effort on facts rather than on principle, and treating each year's work as if it yielded nothing worth remembering in the next, is not open to equally grave objection.

The following is in outline the Geography scheme used both in large and in small schools in the Coblenz Regierung. The large schools take more detail; but where there is only one teacher the two Stufen are taught together, and it will be noticed that the work of the higher stage covers that of the lower so as to make this possible. In this way a child goes through much of the matter no less than six times over.

The character of the teaching itself is usually interesting and effective. Based upon physical facts and eschewing mere nomenclature, it relies greatly on picturesque characterisation, and full delineation of a few salient points, with frequent reference to History, and much use of sketch maps. In some neighbourhoods afternoon excursions are regularly undertaken for the illustration of Geography and Natural History.

*Geography Course prescribed for Coblenz Regierung.**

First Year.

MITTELSTUFE.	OBERSTUFE.
Surroundings of the school; streets, lanes, buildings, etc.; their position by the compass.	The story of school, church, and village.
Surroundings of the place in the same way.	Information about places within view; their distance from the village.
In the schoolroom; position of walls, windows, door, church, hills, etc., by the compass.	
Sketch map of village and surroundings: introduction to map.	
Authorities of the Bürgermeisterei; villages, mountains and roads contained in it; sketch map.	The Bürgermeisterei and Bürgermeister; other authorities; products, high roads, post, telegraph, etc.
The Kreis in the same way; sketch map.	From this point onwards, same as Mittelstufe, with the addition of more detail.
Rhine, Moselle, Saar. Towns on the hills and on these rivers.	
Various other rivers and towns.	
Regierungsbezirk Coblenz.	
Rhine Province.	
Broad physical features of Germany.	

* This course is, as in other Regierungen, adapted to the locality.

Second Year.

MITTELSTUFE.	OBERSTUFE.
The Heimat as in first year.	
Germany (political outline).	Same general headings, with more detail.
Prussia.	
Other German Kingdoms.	
General outline of other European Countries.	
General outline of the Oceans and the World.	
The Earth a Sphere. Poles, Equator, Zones, Sun, Moon.	Mathematical Geography simply treated.

Other courses which might be given exhibit variations in form rather than in substance; and History often follows similar lines. The following scheme is taken from a school with two teachers, each in charge of one class with forty children, and therefore favourably circumstanced.

History Scheme (approved for a School in the Potsdam Regierung.)

I.—MITTELSTUFE.

First Year.

SUMMER.

1. Names of Prussian Rulers and their Children.
2. Important Events in the Life of the Emperor and Empress.
3. Other Members of the Royal House.
4. Life of Frederick III.
5. Recapitulation.

Second Year.

SUMMER.

Work of First Year recapitulated

First Year.

WINTER.

6. William I. (youth).
7. Do. (as King).
8. Do. (as Kaiser).
9. Kaiserin Augusta.
10. Bismarck and Moltke.
11. Life of Frederick William IV.
12. Recapitulation.

Second Year.

WINTER.

1. Frederick William III. and Louisa.
2. The troublous Napoleonic years.
3. Heaven's vengeance in Russia.
4. The call to arms by the King in the cause of Freedom.
5. Blucher's victory at the Katzbach.
6. Battle of Leipzig.
7. Stories of the War of Freedom.
8. Stories from the life of Frederick William III.
9. Recapitulation.

II.—OBERSTUFE.

First Year.

SUMMER.

1. Frederick William Grosser Kurfürst).
2. Frederick I.
3 Frederick William I
4. Frederick II.

Second Year.

SUMMER.

1. Old German History.
2. Varus and Hermann.
3. Migration.
4. Charles the Great.
5. Henry V.
6. Otto the Great.
7 Henry IV. and Pope Gregory
8. The First Crusade.
9. Frederick Barbarossa.
10. Life in the Middle Ages.
11. Rudolph von Hapsburg.
12. Albrecht the Bear.

First Year.

WINTER.

5. Frederick II.—continued.
6. Frederick William II.
7. Frederick William III.
8. Frederick William IV.
9. William I.
10. Frederick III. and William II.

Second Year.

WINTER.

13 The Mark under the Bayer and Luxemburger.
14. Kurfürst Frederick I. of Brandenburg.
15. John Huss and the Hussites.
16. Inventions and Discoveries.
17. Luther and the Reformation.
18. Joachim I. and II.
19. The Thirty Years War.
20. Gustavus Adolphus in Germany.
21. Repetition of pictures of life to the present date, and summing up of the progress of Prussia.

A similar organisation is adopted in the two departments of Naturkunde,—Naturbeschreibung (Natural History) and Naturlehre (Elementary Science), which are usually taken alternately, in summer and winter respectively. Naturbeschreibung deals with the animal, vegetable, and mineral kingdoms generally, and with the physiology of Man; Naturlehre with the properties of bodies, Sound, Light, Heat, Electricity and Magnetism. The treatment does not profess the system of a scientific course, but consists of a series of Object Lessons, calculated to stimulate observation, interest, and admiration of Nature.

(3) *Arithmetic and Geometry.*

The German school-child is delivered from many troubles by the decimal system, which makes arithmetic comparatively simple, and it is not found difficult to add a little Geometry to the other work of the Oberstufe. Oral work takes a prominent place throughout, and the handling of problems or statement of processes by the children is often strikingly rapid and clear. Of course the superiority of the German child in all oral exposition greatly helps him here also. I have never observed any of those tricks—counting by threes, making strokes on slates, &c.—which examination purposes have popularised in England.

IX.—Proposals for Reform.

It has already been said that Prussia has no general Education Law. There are individual laws for school attendance, teachers' salaries and pensions, State supervision and State aid; separate provincial laws affecting school attendance, appointment of teachers, and other matters; and decisions of Courts of Law filling up lacunæ. But there is much diversity in these ordinances, and much depends upon ministerial orders, which may possibly change with the Minister.

The last attempt to pass an Education Law was made in 1891, and, like its many predecessors, failed. Its main purposes were to establish the provisions of the Allgemeine Bestimmungen on a legal instead of a ministerial basis, to regulate the support of the school, as well as attendance and penalties for non-attendance, on a uniform plan for the whole country, and to reorganise school districts. It left the subjects of instruction and the size of the normal class untouched; but it would have given to each locality a voice in the appointment of the teacher, and would have facilitated the extinction of abnormal classes.

Reformers are unanimous in demanding continuation schools with compulsory attendance, and better provision for the educational ladder, which does not at present exist for country children; they would gladly see the abnormal class abolished and the normal class reduced.

The over-employment of children out of school affords, as in England, a solid ground for complaint. "They have no holidays," said a German teacher to me; and it is apparently too true, in country districts at all events, that too much labour is imposed upon children by their parents.

Local self-government is often demanded, but without any precise definition of the powers which each locality would acquire, or any suggestion of safeguards against the chaotic result to which local self-government in the full sense would lead.

The better general culture of the teacher by means of the Real-Schule before, and the University after, the Training College course, is a need which has its counterpart in England; but if the German teachers require a broader education, the English teachers, taken as a body, require it still more. The German teacher has, at least, the Training College, which none of our assistants, and little over half of our certificated teachers, ever enter; and as regards his technical training, he has very much surer guidance. If it is deplored that Pädagogik is neglected by the German Universities, how much greater is the defect in England, where even in Training Colleges the science of Education has not in any full sense a sure hold.

There is substantially little clamour for changes of curriculum; and, indeed, the stability of the German syllabus, which has since 1872 remained practically unaltered, is for us one of its most noteworthy features. Still, there are suggestions for reform. Some, who rightly regard the function of the Elementary School as wholly propædeutic, would find room for manual occupations

by still greater simplification and fusion—not alteration—of the existing subjects, relegating all technical teaching to the Continuation School which they hope to see established. Others, less sanguine in this direction, take for their text what they call "practical aim," and advocate the substitution of Domestic Economy, Manual Work, Hygiene, the elements of simple Law, Book-keeping, &c., for merely formative instruction—a proposal which is very little likely to find acceptance.

X.—The Training of Teachers.

(*a.*) *Präparanden-Anstalten.*

A boy who intends to become a teacher is prepared for the Training College in the great majority of cases in a preparatory school (Präparanden-Anstalt); much more rarely, and only when his means are inadequate, under the private tuition of the local schoolmaster; the number thus prepared is steadily declining. For girls there are no preparatory schools; but candidates for women's colleges proceed to their admission examination direct from private schools of various descriptions.

The establishment of Präparanden-Anstalten was promoted by the State in 1872 in order to prevent the drifting away of boys into business employments; but it was thought undesirable that the Government should take the whole preparation of candidates into its own hands, because either the number of State institutions must be made very large, or else there would be a tendency to localise and otherwise limit the sources of supply. Hence private preparatory schools were encouraged, and these are in many cases affiliated with Training Colleges. More recently too, Municipalities have been prevailed upon to undertake work of this kind.

Thus there are three main classes of Präparanden-Anstalten.

(1.) Government Institutions purely (Staatlich). Of these there are 38. The State provides a building for teaching purposes, not as a rule a hostel, pays the salaries of the teachers, all costs of teaching apparatus and maintenance of premises, and besides this a subsidy of 90 marks (£4 10*s.*) a year for each student up to the number for which the institution is calculated, receiving a fee of 36 marks (£1 16*s.*) a year from each student. Thus at Wandersleben, near Erfurt, the cost to the State is as follows:—

	Marks.
Salaries of Teachers -	6,000
Rent - - -	600
Apparatus - -	400
Heating - -	300
Subsidy - -	5,400
	12,700
Deduct fees - -	2,160
	10,540 = £527.

For the roll of 60 students, this gives an average cost to the State of about £8 16*s.* per head. The subsidy is divided amongst the students, at the discretion of the Principal, and with the approval of the Provinzial-Schul-Kollegium, according to deserts. A needy student whose progress and conduct are satisfactory, might get 30 to 40 marks a quarter; and the weight attached to behaviour forms a powerful instrument of discipline.

The students live *en pension* in the village, in families to which they are assigned by the Principal. As a rule they have what is called half-pension—*i.e.*, bed, breakfast and a good mid-day meal, fire and light. Coming mostly from agricultural homes, they prefer to provide the rest of their food themselves from the larders of their parents

The ordinary cost of this half-pension, holiday time excluded, averages	270 marks
The other food may be counted at -	100 "
School fees - - - -	36 "
	406

To this must be added the cost of books, clothes, and journeys, and the varying amount of the subsidy must be deducted; so that, roughly, the average total cost to the student is 350 to 400 marks (£17 10*s.* to £20).

(2.) Municipal, nine in number. The municipality provides buildings for teaching purposes, and pays the teachers; the Government appoints the teachers, and contributes towards general expenses.

(3.) Private.

(*a.*) In connection with a Training College. There are no statistics of these schools, but about two-thirds of the colleges are said to be provided with them. Financially they are private ventures controlled by the College; educationally, they are governed by the Director of the College, who is *ex officio* Principal, and taught by a regular staff with the assistance of some of the College tutors, each of whom may give not more than four hours a week to this work. At Oranienburg the school is located in a hostel rented by two ladies, who board 80 of the students in the house; the remaining 36 live *en pension* outside at a rather larger cost. Besides his outlay on books and personal expenses, each boy pays for tuition 80 marks: for board and lodging in the hostel, 300 marks. The total cost is thus rather larger than in the State institutions. The College receives the fees and the lodging money of the boarders; the latter is handed over to the lessees, with a further sum equal to one-quarter of the rent.

The cost to the State is nothing, except 1,000 marks a year for the assistance of poor students.

(*b.*) Not in connection with a Training College. These are merely private schools carried on by a syndicate of clergymen or elementary teachers in spare hours. They are more expensive as regards fees, their hours of work depend upon the other engagements of the teachers, and they are liable to the usual difficulties of classification incidental to small schools.

There are always more applications for admission than there are vacancies in these institutions, although the authorised number of admissions is sometimes exceeded.

They were originally organised in two classes, *i.e.* for a two-year course, and the boys were admitted at fifteen. But experience has shown that to leave a gap between fourteen, the age of leaving the elementary school, and fifteen, the age of admission to the Anstalt, was a mistake. Conversion of the two-year into a three-year course (with admission at fourteen) has taken place at Oranienburg and several other places; while Wandersleben and others are about to be re-organised in the same way, and all the larger preparatory schools will gradually follow suit.

There is an admission examination conducted by the Principal and the staff, with which the Government authority does not interfere; informal tests of progress are held during the course, and unpromising scholars are not long retained; the Leaving Examination is held, if the school is a public institution, at the school itself, under the supervision of the Provinzial-Schulrat; or if it is not, the Admission Examination, similarly conducted by the Training College which the candidates wish to enter, takes its place. Those who pass are admitted into a College; those who fail may either retire, or with permission pursue their studies in the school for another year, and make one more attempt.

The syllabus of work, from which all pædagogic matter is expressly excluded, must be approved by the Provinzial-Schul-Kollegium.* It is mainly regulated by the prescribed scope of the admission examination of the College, or its equivalent the Leaving Examination of the school, which includes only the subjects taught in the elementary schools, with the addition of Harmony and instrumental music. A modern language may be taught, but it is not a subject for examination.

The curriculum is much less limited than might be supposed, because the treatment is broad, and the subjects of the elementary school may be so expanded as to cover wide ground. The official instructions deprecate contraction of aim to the target of examination; and the examination itself is not of a character to encourage narrowness. Half a day of written work comes first;

* Or, in the case of purely private institutions, by the Regierung.

then a day and a half of oral questioning in as many groups as there are College Tutors; and in doubtful cases an oral re-examination before the whole staff.

That these boys have to work hard there can be no doubt. They have 30 to 35 hours in class every week, besides 18 hours, preparation out of school, and the practice of musical instruments; and these hours of preparation are no pretence. The teachers, at any rate in some of the institutions, go round to the houses where the boys are domiciled, and see that the hours are strictly kept. I was impressed by the excellence of the lessons, by the admirable outward discipline and demeanour of the students, and especially by the grim earnest in which they seemed to work, and their full and eager answering in class. Here, as in the elementary schools and Training Colleges, the oral answer is the keystone of the whole edifice; here the knack of expression caught in the elementary school is developed, to be brought to full ripeness in the Training College later on. The schools seem to be numerically and otherwise thoroughly well staffed. At Oranienburg, for 116 scholars, there is a fixed staff of three, and five College tutors teach three or four hours a week each. At Wandersleben, with 60 students, a Principal, who takes 19 hours of class teaching per week, and two teachers, who take 26 and 27 hours respectively, divide the work amongst them.

But there is play as well as work. I saw some very vigorous gymnastics under the guidance of a tutor at Oranienburg in a well-fitted Turn-Halle; football is regularly played in winter; and in summer various other games, and walks, are systematically organised.

The following is the Time-table for the Wandersleben School (where at present only two years are maintained):—

TIME-TABLE OF THE WANDERSLEBEN PRÄPARANDEN-ANSTALT.

Hours.	Class.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday
7—8	1 2	Arithmetic Bible History	Bible History Arithmetic	Arithmetic Catechism	Catechism Geography	Natural History Catechism	Church Music Physics
8—9	1 2	Catechism Geometry	Grammar Oral Discussion	Oral Discussion Arithmetic	Geometry Bible History	Bible History Arithmetic	Oral Discussion do.
9—10	1 2	Geography Church Music	French Piano	Natural History French	Grammar Natural History	Physics French	Essay Geography
10—11	1 2	History Natural History	Physics Writing	Harmony Grammar	Geography Geometry	French Piano	Arithmetic Harmony
11—12	1 2	Piano Essay	Drawing do.	Organ History	Piano Writing	Drawing Grammar	Piano History
2—3	1 2	Violin	Geometry —	— —	Violin	History —	— —
3—4	1 2	Violin	History —	— —	Violin	Writing —	— —
4—5	1 2	Singing	—	—	Singing	—	—

(*b.*) *Training Colleges.*

After quitting the Präparanden-Anstalt, the candidate passes into the Training College for a three years' course, till the end of which there are no examinations, except periodical tests of progress by the College. In the first year the student studies the History and Science of teaching, but does not practise: in the second he teaches a little—at Oranienburg one hour a month for nine months, and in the last three months rather more than this, with a good deal of "hospitieren," *i.e.*, standing by and observing, in the Practising School; in the third year he teaches 6 to 8 hours a week. He takes certain subjects continuously for ten weeks, and then changes to others; so that in the year he gets practice in all. Thus in Prussia (it is not so in Saxony) the Practising Schools are practically taught by the third-year students, but the tutors, who of course give model lessons, exercise a constant and close supervision.

The first public examination (Entlassungsprüfung) comes at the end of the third year, not at any fixed time of year for all Colleges, but at dates varying with the month of admission, which is purposely diversified in order that the supply of teachers may be constant. The examination is conducted, under the eye of Commissioners from the Provinzial-Schul-Kollegium and the Regierung in which the College is situated, by the staff of the College. The Inspectors of the Regierung may if they wish be present.

It consists of tests on paper lasting two or three days, and five or ten minutes' oral examination of each student in all subjects. Those who pass—and there are very few failures, because of the weeding process that goes on in the Präparanden-Anstalt and even in the Colleges—receive a certificate of their attainments in each subject, and of conduct. They are then appointed to the provisional charge of a school or class, and they are bound to accept any post to which the provincial authority assigns them. Every student on entering the College binds himself under pecuniary penalties neither to leave the College of his own free will before the end of his course, except on account of illness, nor to refuse any post which may be given him during the first five years after his first examination. The provisional appointment (which may be recalled) lasts until he passes, in not less than two or more than five years, a *second examination* which in the main does not test knowledge, but aims at discovering whether the candidate has acquired skill in practical work, and a mastery of educational principle, and whether he has made use of the interval to improve his general culture. Certificates of his success in school-work are required. But he may, if the examiners think fit, or if he himself wishes to improve his marks, be tested in the subjects of the first examination.

For this second examination teachers present themselves at a

College in the Regierung in which they are serving. In the ordinary course, it consists of—

(*a.*) Written Work.—Essays (i,) on some subject of school management.
„ (ii.) on some religious subject.
„ (iii.) on some other subject of instruction.

(*b.*) Practical Work.—A lesson on a subject named the day before.

(*c.*) Oral examination in the History, Practice, and Theory of Teaching.

Special success in the two examinations qualifies for the instruction of the lower classes in Mittelschulen and höhere Töchterschulen. But a further examination (Mittelschulprüfung) is necessary, if the Teacher wishes to qualify for the higher classes in these schools; and he is not eligible for the post of Rector —*i.e.*, Headmaster of a school with six or more classes—or of Tutor in a Training College, unless he passes both the Mittelschulprüfung and another examination beyond it (Rectoratsprüfung).

The staff of the Training College consists of the Director and the Oberlehrer, who have usually received a University education, and a number of tutors qualified as just described. At Oranienburg, for 95 students, there are seven tutors, but it must be remembered that on them devolves the whole supervision of the Practising School, and that five of them take part in the instruction of the Präparanden. The Practising Schools are supposed by the official rules to include a one-class school and another school of several classes; but this is not always the case. At Oranienburg, for instance, there is only one school, in six classes. These schools do not come under inspection, and are not included under the category of Public Elementary Schools, though they serve the same purpose.

The cost of the Training College to the student varies according as he is or is not boarded in the College. The State pays for lodging, light, fire, apparatus, and use of musical instruments; gives a subsidy of 90 marks for each student in College, which is distributed, as in the Preparatory Schools, by the Director with the approval of the provincial authority, according to deserts—*i.e.*, behaviour and need of assistance; while the in-college student pays at Oranienburg about £6 a year for the greater part of his food (bread is not included), and has also to provide himself with books and other materials. About £10 a year probably represents the total expense.

The non-resident students, who number not far short of half of the whole number, have to pay much more heavily for keep, unless they live at home; and their total expenses probably average £25 to £30 a year. There are no tuition fees in either case.

In 1896 there were 11,034 students, of whom 5,997 lived in College, and 5,037 outside. As applicants are more numerous than the vacancies, it will be seen that the youth of Prussia are

willing to make considerable sacrifices, to forego wages, and lay out a substantial sum, for the privilege of securing a teacher's position.

For Women no organised examination system existed before 1874. It has already been said that the number of women teachers, although increasing, is still very small,—only 13 per cent. of the whole number; and that women are never placed in principal charge or sole charge of any elementary school. At the present date the women's Training Colleges produce an output largely in excess of the demand for elementary schools; the surplus find employment in private tuition and in higher girls' schools. In fact, women's Training Colleges are not institutions which exist, as the men's Training Colleges exist, for the sake of the Volksschule alone, but they serve a more general purpose; and the students are consequently not bound to become elementary teachers.

One result of these circumstances, and of the further fact that girls are not drawn away so much as boys into business occupations, is that no Präparanden-Anstalten are provided for girls. They proceed to the Training Colleges direct from their schools. In some cases the schools have received the privilege of examining for the certificates, under certain conditions imposed by the State, fixing the curriculum, and the length of the course, which must last three years.

Since 1894 the age has been fixed at 19. A second examination is required for certain superior posts, but the full qualification for the Volksschule is gained in a single test.

Some statistics of the Training Colleges may be useful for purposes of comparison. For 1897 the figures were as follows:—

MEN.

Colleges.	Students.					
	Total.	In College.	Out of College.	1st Year.	2nd Year.	3rd Year.
115	11,034	5,997	5,037	4,095	3,622	3,317

There were 750 fully qualified, and 82 additional teachers; and there was one student to every 2,704 inhabitants of Prussia.

WOMEN.

*Public Colleges.	Students.					
	Total.	In College.	Out of College.	1st Year.	2nd Year.	3rd Year.
11	748	372	376	279	233	236

*Besides some 30 schools to which the right of holding a final examination has been accorded.

There is no difficulty in increasing the number of Colleges, or in establishing additional classes at existing Colleges, as the fact that the number of students has increased 135 per cent since 1870 convincingly shows.

XI.—Cost of the Volksschule.

The population of Prussia in December, 1895, was 31,855,133, and the total cost of the Elementary Schools in 1896 was 185,917,495 marks (£9,295,874), not including the cost of central and local administration. From this amount, for purposes of comparison, must be deducted the cost of new buildings—27,574,781 marks; so that the total charge for *maintenance* is 158,342,714 marks. This, divided by the number of children at school (5,236,826), gives 30·24 marks, or £1 10*s.* 3*d.*, as *the average cost per head.** A similar calculation shows for Prussian town schools alone, £2 0*s.* 2*d.*; for Prussian country schools alone, £1 2*s.* 3*d.*

The estimated population of England and Wales in 1896 was 30,800,522, and the total amount expended on Elementary Education, including the cost of Training Colleges, but not that of central and local administration, is not less than £11,000,000, of which the State contributes, under the operation of recent Acts, about £8,000,000. In Prussia, the State expends on Elementary Schools, Präparanden-Anstalten, and Training Colleges, about 75,000,000 marks, or £3,750,000, while the percentage of the total expense for Elementary Schools alone, borne by the State and the localities respectively, is returned as follows:—

	Whole Kingdom.	Town.	Country.
Paid by State ...	29 per cent.	16 per cent.	39 per cent.
„ by localities	54 „	69 „	42 „

This return includes the cost of buildings and interest on loans, taken on an average of three years. The proportion not here accounted for comes from endowments.

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* The official returns, which *include* the cost of new buildings and interest on building loans, give the cost per child for Prussia as follows:—

	1886.	1896.
Whole Kingdom ...	24 marks	35·5 marks.
Towns	33·5 „	47 „
Country	19·8 „	29·7 „

It is difficult to compare any of these figures with the corresponding returns for this country. The cost per head for *maintenance* in England and Wales in 1896 was £1 19*s.* 6¾*d.* in Voluntary Schools, £2 11*s.* 11¾*d.* in Board Schools; but we have to remember that this calculation is made upon the *average attendance*, which is less by 1,000,000 than the number enrolled; and it includes the outlay on slates, books, and other materials which the scholars themselves provide in Prussia.

SAXONY.

The Elementary School system of Saxony resembles that of Prussia in its fundamental principles. Every school embracing children of school age, whether public or private, is under State control and inspection. No one without a teacher's qualification is allowed to teach even his own children. No school, however small, may be carried on without approval; or if it is conducted for profit, without the express sanction of the Ministry at Dresden.

But differences of practice have arisen not only from the general tendency of independent organisations to drift into courses of their own, but also from the smaller size and greater homogeneity of the State (of which the population is about 3,800,000), and from the existence since 1873 of a comprehensive Saxon Education Law.

I.—General Administration.

The central authority, the Ministerium des Kultus und öffentlichen Unterrichts, in Dresden, derives its power from one source only, the Education Law. The difficulties therefore which arise in Prussia from varying local laws and questions of competence, are not experienced in Saxony. There is no devolution of administrative work to provincial authorities, but the whole business of education is transacted by the Ministry, consisting of the Minister and seven Räte, of whom three are jurists and four educational experts. The inspectors (Bezirksschulinspektoren) are none of them beneficed clergymen, as in Prussia, but they are all full Government officials. The inspection of Training Colleges is entrusted to one of the Ministerial Räte, that of the Gymnasien and Real-Schulen to another; and the Minister himself spends some days in seeing schools every year.

The qualifications and duties of the inspectors are much the same as in Prussia, but their districts are very much larger, varying in size from a population of 53,000 to one of 336,440. Besides the day schools, public and private, the Evening Schools of every place require annual inspection, and for their assistance in their onerous clerical work the inspectors are in the larger districts provided with clerks. As in Prussia, it is not regarded as necessary to report on every class each year; but whereas inspection in Prussia means a rapid examination of the children, it takes the form in Saxony of observation of the ordinary teaching.

Other supervising officers are the Amtshauptmann, who, like the Landrat in Prussia, is chiefly concerned with externals, and the Bezirksartzt (Medical Officer of Health), to whom all sanitary questions including those which relate to light, ventilation, and warming, and the general adequacy of new buildings, are referred.

Under the Bezirksschulinspektor stands the Local Inspector (usually as in Prussia the local clergyman), who presides in the

elected School Committee, of which in Saxony the teacher is an *ex-officio* member. He is the immediate superior of the teacher, whose position and rights as a civil servant are much the same as in Prussia, except that his minimum salary is rather better, while on the other hand he is not entitled to increments unless he has charge of more than forty children.

At present the minimum pay of an ordinary teacher is 1,000 marks, rising by degrees to 1,800 marks after 30 years' service; but after the present year it will run from 1,200 to 2,100 marks. For a Director (master of a large school) with ten classes, the minimum is 2,700 marks; for other Directors, 2,250 marks. It should be borne in mind that these sums are minimum amounts, and that a dwelling-house or its equivalent, and payment for Church duties where they exist, are additional. So far as can be gathered from the last Saxon returns, which are much less complete than those of Prussia, and relate to the year 1894, there were 308 Directorates with an average salary (apparently besides house accommodation) of £183; and 7,161 permanent places for ordinary teachers (men and women), averaging £96. The proportion of women is even smaller than in Prussia. Out of 8,659 teachers (Lehrer und Hilfslehrer)* in 1894, only 245, or 2·8 per cent., were females. On the whole the teacher's chances in Saxony are rather better than in Prussia. He is enabled, if his College course is successful, to go to Leipzig for a course of pædagogy, no further examinations are required for the higher school posts, and many good appointments are open to him.

When a school vacancy has to be filled up, it is the duty of the inspector to select three candidates, of whom the School Committee must choose one. The teacher is bound to teach 32 hours a week in the Day School, and he must give extra time if the Committee requires it, whether in the Day School or the Evening School, and for this he is remunerated at the fixed rate of £1 16*s.* a year for each weekly hour.

The Saxon law imposes rules for attendance, admission, change of school, and kindred matters, which differ very little from those which are operative in Prussia. But it further requires boys from 14 to 17 years of age to attend Continuation Schools, either for two hours a week all the year round, or for four hours a week in the winter half-year; and the local School Committees have power, which is sometimes exercised in industrial centres, to extend the time to six hours.† In such places technical classes are held, adapted to the industries of the place, and in all the larger towns a variety of subjects are taught. But in country villages the instruction is limited to German and Arithmetic, German including, however, the study of a special reading book which contains much History, Geography, and Elementary Science, as well as information about the simpler laws of the

* In Saxony a Teacher who has not passed both his examinations can only be employed as a Hilfslehrer, *i.e.*, as a class-teacher liable to removal. He cannot be placed in independent charge of a school.

† They may also establish compulsory attendance for Girls for *two* years; but there are only six Girls' Continuation Schools, with 1,699 scholars.

country. The classes are now usually held in the evenings of week-days, much more seldom on Sundays. The teachers are the Day School teachers, who are remunerated on the scale given above. Fees may be, but in fact are not, charged for instruction.

Attendance is very strictly enforced, and the punishments for misconduct detailed in ministerial orders indicate that strong measures are sometimes necessary for the preservation of discipline. A scholar who does not attend may be forcibly brought to school. In case of misbehaviour the teacher may resort to rebuke, imposition, keeping in for an hour, or admonition in the presence of the inspector. The Local Inspector or Committee may rebuke the scholar, or admonish his parents, impose imprisonment, *i.e.*, detention in the school premises, up to 12 hours, and serious cases are visited by official expulsion. There is also strict surveillance of the conduct of these youths outside the school. They are, for example, not allowed to attend public dances, or any doubtful places of amusement.

The financial returns for 1893 (the last available) show that the total expenditure on Elementary and Continuation Schools (not including Practising Schools) was in that year £1,169,357, of which £200,582 was paid by the State; the Day School fees produced £212,280; and the remainder (£756,493) came from local sources. There are no data showing the cost of *maintenance* by itself.

II.—Day School Organisation.

The term "öffentliche Volksschule" includes in Saxony three kinds of schools, distinguished by the number of hours of instruction, the amount of the fees, the subjects taught, and the maximum size of the classes. These three kinds are Simple, Middle, and Higher (einfache, mittlere, and höhere Volksschule);* whereas in Prussia the Mittelschule and höhere Mädchenschule, though regarded as belonging to the lower order of schools, are not classed under the head of Public Elementary Schools.

(*a.*) The einfache Volksschule is a half-day school, and is divided into at least two classes, except that in very few exceptional cases of small numbers a one-class organisation is allowed. The class must not exceed 60, a limit considerably lower than that of Prussia, which is 80 for one-class schools, 70 for all others. Fees must be charged, but they are determined by the locality, and usually amount to five or six marks a year. The subjects are the same as those of the Prussian Volksschule.

These schools are the true Public Elementary Schools which supply the needs of the poorest part of the population, and they are consequently the schools of the villages.

* These terms, "mittlere" and "höhere" Volksschule must not be confused with the terms "mittlere Schule," as applied to the Realschule," and "höhere Schule," as applied to Gymnasien and Töchterschulen.

In some towns (as in Dresden) they do not exist, but when this is the case, the fees of the mittlere Volksschulen are lowered.

(*b.*) Mittlere Volksschulen (called in Dresden Bezirksschulen) must have at least four classes, and be under a Director. They are nearly all large town schools. The subjects of instruction are the same as those of the einfache Volksschulen, but with the extended scope rendered possible by longer hours. The third and fourth years must receive 20 hours' teaching per week, and in the 5th to 8th years 26 hours are prescribed for boys, 24 hours for girls, besides Drill and Needlework; and the course may extend to nine years. The fees are higher, and the number of teachers approaches or equals that of the classes. The limit of the class is 50.

(*c*) The höhere Volksschulen (called in Dresden Bürgerschulen) provide a higher course of instruction, which must include one Modern Language. They charge still higher fees, and are assumed to extend their course to ten years. The hours are at least 22 in the third year, and must rise to 30, but may not exceed 32, in the final stage.

The chief statistical facts may be shown as follows (for 1894)

	SCHOOLS.		SCHOLARS.		CLASSES.	
	Number.	Per cent. of total.	Children in attendance.	Per cent of total.	Number.	Average size.
Einfache Schulen	2,005	89	453,749	73	9,998	45
Mittlere	210	9·3	147,384	24	3,749	39
Höhere	39	1·7	16,715	3	573	30
	2,254	100	617,848	100	—	—

These figures show that both the number and the size of *abnormal* classes are kept within reasonable bounds. In the einfache Schulen such classes number only 615, or 6 per cent. (as against 18 per cent. in Prussia), and their average size is only 67 children, or 7 above the normal limit. But if we consider not the class, but the number of children entrusted to one teacher, we find that for each of the 8,617 places which require a fully employed teacher there are on the average 71·7 children; and with a class limit of 60, a single teacher may and often does under the half-day system teach 120.

The Halbtagsschule, which in Prussia is only called into being when the einklassige Schule becomes impossible, is in Saxony the archetype. With very few exceptions, even quite small einfache Volksschulen are divided into morning and afternoon classes. It is true that many of the larger ones include parallel upper classes, which attend both morning and afternoon, and

are therefore partly mittlere Volksschulen; but these are cases of development from the original type, which remains unaltered in the great majority of cases.

Further, the Halbtagsschule is a true half-day school. There is none of the intermixture of attendances which is so often found in Prussia, but one section comes only in the morning, and the other only in the afternoon, with the small modification necessary on half-holidays. This arrangement sets the juniors free every morning, and the seniors every afternoon, throughout the year, and the Prussian plan of concentrating all the work into the summer morning is neither necessary nor allowed.

It may be said of the Saxon system that it is much more symmetrical and cut to pattern than the Prussian; the letter of the law is more exactly observed, and official supervision seems to be closer; with the result, amongst others, so far as I had the opportunity of judging in a very limited time, that the buildings, furniture, and apparatus are more adequate and in better condition. It is possible, however, that so paternal a control has its disadvantages.

The half-day school, as it exists in Saxony, actually and not merely theoretically fulfils its avowed purpose of securing smaller classes; but its defects are admitted. Herr Grüllich, now a Schulrat in the Kultus-Ministerium, and formerly an Inspector, insists in his *Lehrplan für die einfache Volksschule*, that the hours of instruction are insufficient. In the published comments* of the Ministry in 1872, upon the proposals which are now law, it is pointed out that the limit of the Class (60), and of the number (120) to be taught by one teacher, was only so fixed because it seemed impossible to reduce it, and it is strongly urged that individual localities should do what they can to lower it for themselves.

The same care is taken in Saxony as in Prussia to protect religious minorities in so far as they profess a religion recognised by the State, and to secure that all children, whether their parents accept the teaching of the school or not, may receive religious instruction; but there are no schools, like the paritätische Schulen of Prussia, in which teachers of more than one denomination are employed upon the staff, with a view to the representation of different creeds in the same school.

It should be noted here that it is usual in Saxony for parents of all classes to send their sons (not their daughters) to the Elementary School, especially the mittlere and höhere Volksschulen.

The commonest forms of the village school, which is always an einfache Volksschule, are—

(*a*.) The two-class school under one teacher, in which the minimum number of hours of instruction per week is for—

Class I. (5th to 8th years)...	...	18.
„ II. (1st to 4th „ ...	...	14.

* Quoted by Herr von Seydewitz (now Minister of Education) in his edition of the Education Law, *Das Königlich Sächsische Volksschulgesetz*, p. 69.

Class I. attends in the morning, Class II. in the afternoon. Of the whole number of einfache Volksschulen, 42 per cent. were thus organised in 1894.

(*b.*) The four-class school under two teachers, with minimum hours as follows:

Class I. (7th and 8th years)	... ...	20.
„ II. (5th and 6th „)	... ...	18.
„ III. (3rd and 4th „)	... ...	14.
„ IV. (1st and 2nd) „)	... ...	12.

Classes I. and II. attend in the morning, Classes III. and IV. in the afternoon. Such schools numbered 24 per cent. of the total in 1894.

This very limited allowance of time may be, and often is, increased by the School Committee representing the wishes of the locality.

It is a clear advantage of the Halbtagsschule that even in the smallest schools so organised not more than four years can be grouped for instruction; and when the school is larger, and there are two teachers, not more than two years. Thus in a two-class school the first and second years have Anschauungsunterricht, the third and fourth Heimatkunde (which enlarges the observation of natural facts, and lays the foundations of History and Geography), and the 5th to 8th years (Class I.) proceed to a four-year course in History and Geography much as follows:—

History
- A. German History to the Discovery of America.
- B. The Reformation to the present date.
- C. Pictures from Ancient History.
- D. Modern History.

Geography
- A. Saxony.
- B. Germany.
- C. Europe.
- D. Outlines of the World.

In a school of four classes, an arrangement like the following is adopted for alternate years:—

Geography—3rd and 4th years (Class III.):—
- A. Heimatkunde.
- B. Saxony.

„ 5th and 6th years (Class II.):—
- A. Germany.
- B. Europe (outlines).

„ 7th and 8th years (Class I.):—
- A. Europe (more detail).
- B. The World (outlines).

* The Schools taught in one class, being exceedingly few, are left out of account in the official returns, and need not be considered here. But mention should be made of 110 schools with *three* classes under one teacher, taught one after another through the day. It is satisfactory to know that the teacher is remunerated for overtime.

The Reading Books are chosen from a short list issued by the Minister, but inspectors are instructed to secure the use of the same books throughout each district. Although the groups for reading are, as in other subjects, more limited than in Prussia, the quantity of matter covered is not larger. The general view of the aim of the School, of the use of the Reading Book, and of the purpose of individual subjects, is the same, and must be taken into account in any judgment upon the shortened hours and other characteristics of the Halbtagsschule.

The following are specimens of Time-tables, one used in a two-class, and the other in a four-class school in the neighbourhood of Dresden :—

WINTER TIME-TABLE OF A TWO-CLASS SCHOOL (56 CHILDREN).

(The hours are one hour earlier in Summer.)

CLASS I.

Hour.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8—9	Religion	Religion	History	Religion	Religion	Geography
9—10	German	German	Arithmetic	German	Arithmetic	German
10—11	Arithmetic	Natural History	Singing	Copy Writing	German	Singing
11—12	Copy Writing	—	—	Home Lessons	—	—

CLASS II.

1—1.45	Religion	Religion	11—11.45 Object Lesson and Heimatkunde	1.0—1.45 Religion	Religion	11—11·45 Object Lesson Heimatkunde
1.45—3	Reading and Writing	Reading and Writing	11.45—12.30 Reading and Writing	1.45—2.30 Arithmetic	Reading and Writing	11·45-12·30 Arithmetic
2—3.30	Arithmetic	Arithmetic	12·30—1.0 Singing	2.30—3.30 Reading and Writing	Arithmetic	12.30—1.0 Singing

SUMMARY OF HOURS.

—	Class I.	Class II.
Religion	4	3
German	5	5½
Arithmetic	3	3
Writing	2	—
History	1	—
Geography	1	—
Natural History	1	—
Singing	1	1
Anschauungsunterricht, or Heimatkunde	—	1½
Home Work	1	—
	19	14

Here the prescribed minimum of time is exceeded in Class I. by one hour. Needlework, which is not taught in rural schools in the first four years, is provided for, but does not appear in the time-table. Drawing, which is not obligatory for two-class schools, is not taught, and there is no drill.

WINTER TIME-TABLE OF A FOUR-CLASS SCHOOL (188 CHILDREN).

(The hours are one hour earlier in Summer).

Hour	Class	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8—9	I	Religion	Religion	History	Religion	Religion	Geography
	II	Do.	Do.	Geography	Do.	Do.	German
9—10	I	German	German	Geometry	German	German	Arithmetic
	II	Do.	Do.	Arithmetic	Do.	Do.	Copy-writing
10—11	I	Naturkunde	Arithmetic	—	Drawing	German	Class III. 10—12·30 Nat. History 60′ Arithmetic 60′ Singing 30′ Class IV. 10—12 Object Lesson 30′ German 60′ Singing 30′
	II	Arithmetic	Drawing	History	Nat. History	Copy-writing	
11—12	I	Arithmetic	Copy-writing	Class III. 10—12·30 Religion 60′ German 60′ Singing 30′ Class IV. 11—1 Religion 30′ German 60′ Singing 30′	Drawing	Singing	
	II	—	Singing		Arithmetic	Home-work	
12—1	I	Home-work	—		—	—	—
	II	—	—		—	—	—
1—2	III	Religion	Heimatkunde	—	Arithmetic	Religion	—
		Class IV. Religion 30′ German 60′ Arithmetic 30′	Class IV. Object Lesson 30′ German 60′ Arithmetic 30′		Class IV. Object Lesson 30′ German 60′ Arithmetic 30′	Class IV. Religion 30′ German 60′ Arithmetic 30′	
2—3	III	German	German	—	German	German	—
3—4	III	Copy-writing	Arithmetic	—	Copy-writing	Home-work	—

SUMMARY OF HOURS.

——	Class I.	Class II.	Class III.	Class IV.
Religion	4	4	3	1½
German	5	5	5	6*
Arithmetic	3	3	3	2
Writing	1	2	2	—
History	1	1	—	—
Geography	1	1	—	—
Natural History	—	1	1	—
Elementary Science	1	—	—	—
Geometry	1	—	—	—
Drawing	2	1	—	—
Singing	1	1	1	1
Anschauungsunterricht	—	—	1	1½
Home-work	1	1	1	—
	21	20	17	12

* Includes writing.

Besides (in Classes I. and II. only), Drill for Boys, 2 hours in Summer, and Needlework for Girls, 2 hours.

III. TRAINING OF TEACHERS.—(1.) *Men.*

The eighteen Men's Training Colleges of Saxony all admit students at thirteen years of age, and have a course of six years. One of them is purely residential, one purely non-residential, and the remainder are mainly residential, with a proportion of day students. Altogether there are, according to the latest return, 2,386 students living in College, and 736 day students. One of the Colleges is Catholic, the rest are Evangelical.

The State defrays the cost of lodging and tuition; the student pays £9, more or less, annually towards the expense of board, and provides his own books, but poor students are assisted from State funds. Some of the Colleges have foundations, but these also receive assistance from the Treasury.

When a deficiency of places exists, one method of relief is to establish a parallel class, or sometimes more than one, moving up year by year, side by side with a regular class. No class may, as a rule, exceed 25 in number, so that, apart from these parallel classes, the College is limited to 6 × 25—*i.e.*, 150 students.

The Practising Schools are supported partly by fees, which, as in other schools, may be remitted in cases of poverty; and they are taught, not, as in Prussia, by students under supervision, but by teachers who are members of the College staff, set apart for this work, and made responsible for it. They are mixed schools, and are treated in the official returns as mittlere Volksschulen; but they may be, and often are, einfache Volksschulen, with the limited curriculum of this kind of school. The number of children in a class is limited by law to 24, but is allowed by Ministerial Order to be raised to 30.

As in Prussia, Practising Schools are exempt from ordinary inspection, but of course come under the general cognizance of the Schulrat from the Ministry who inspects the Colleges.

Students are admitted at Easter after passing an examination, and enter into a bond under pecuniary penalties not to leave the College prematurely of their own free will, or to refuse a post offered them at the end of their course, until they pass their second examination. The hours of work during the course are strictly prescribed for each subject in Ministerial Orders and the total amount, excluding music practice, preparation and the optional subject of Shorthand, must not exceed 36. But as music and preparation require 17 hours weekly, the work of the students is heavy, and it appears to be the opinion of the Directors that it is excessive. In Prussia I heard the same opinion expressed about the work of students, but not about that of the Präparanden.

The following table shows the prescribed apportionment of time:

	CLASS					
	I.	II.	III.	IV.	V.	VI.
Religion	3	4	4	4	4	4
German	3	4	3 or 4	3 or 4	3 or 4	3 or 4
Latin	2	2	4 or 3	5 or 4	7 or 6	7 or 6
History	2	2	2	2	2	2
Geography	2	2	2	2	2	2
Sciences	2	2	3	3	2	2
Arithmetic and Geometry	3	4	4	5	4	4
Teaching: Theory	5	5	4	—	—	—
Teaching: Practice (see below)	4	4	—	—	—	—
Music (see below)	3 (5)	3 (5)	3 (6)	4 (7)	4 (6)	6
Writing	—	—	1	1	2	2
Shorthand (optional)	—	—	1	2	2	—
Gymnasium	2	2	3	3	3	3
Drawing: Freehand	Private work and quarterly tests		2	2	2	2
Drawing: Geometrical	1	1	—	—	—	—

In music some students are dispensed from certain parts of the instruction after the first year.

Although every student in the fifth and sixth years devotes four hours a week to the Practising School, very little time is spent in actual teaching; and some Directors of Training Colleges and others would gladly see it increased. The amount is entirely undefined, but it appears to vary from ten to fifteen hours in a year. The students of the two senior years, who number about fifty, are divided into groups of about six each, and hear lessons given to illustrate points previously dealt with theoretically, keeping to one set of subjects for a time and then changing. The lessons are followed by discussions. The Saxon method resembles the Prussian in so far as students begin to study the Theory of Teaching in the last year but two, and

do not come into contact with the schools until the last year but one; it differs from it as regards independent practice, and so far as I have been able to form an opinion, to the disadvantage of Saxony.

The examinations held during the course are :—

(1) Half-yearly examinations at Michaelmas and Easter conducted by the College. The former is a written examination on technical subjects; the latter written and oral, dealing with the work in general. Once a year, after Easter, the students are classified for attainments and for conduct, and a report is sent to their parents.

(2) At Easter in each year the *Leaving Examination Abgangsprüfung or Schulamtskandidatenprüfung*) is held, in which the students who have reached the end of their course are examined by the College, under the oversight of a Kommissar, appointed by the Ministerium. In most cases the Director is himself Kommissar, but a Schulrat from the Ministerium acts in this capacity for the two women's Colleges, and the District Inspector for the Catholic College. The Church authority may also send a Kommissar, and it is the practice of the present Ministerial Schulrat to attend all examinations, and put questions. The tutors of the College are the examiners, each in his own subject. Candidates need not be students, but the number of non-students examined is said not to exceed ·5 per cent.

The plan of the examination is as follows:

I. Written Work.

A. Not under surveillance, but done in ten days and sent in to the Director—

(i.) Essay on a pædagogic subject.

(ii.) Full notes of a lesson on a religious subject.

B. Under surveillance (4 days). Papers on Mathematics, Realien, and Music, and Latin Translation.

II. Practical—

(i.) The above lesson delivered.

(ii.) Another lesson (20 minutes) after one day's preparation.

(iii.) Drawing, Writing, Music, Gymnastics.

III. Oral. All subjects; in sections of six students each. Not more than four hours for each section.

After the examination the staff arrange the students in classes, I. (*a*), I. (*b*), &c., to III. (*b*) for attainments, and also for

conduct and diligence. Those who fail may have a second chance, but not a third. In fact, however, failures are extremely rare.

After passing the Abgangsprüfung, students are qualified for appointment as Hilfslehrer. but are not, as in Prussia, placed in independent charge of a school until they have gone through the *second examination (Zweite Prüfung or Wahlfähigkeits-Prüfung)*, which follows at an interval of not less than three or more than five years after the first; so, however, that if a candidate wishes to be examined at the Christmas which falls in the third year he may do so, thus reducing the period to 2¾ years.

The second examination, like the first, is conducted by the College itself under the oversight of a Kommissar from the Ministerium (generally the District Inspector), and another from the Church Authority. It consists of:—

1. Written work:—
   - A. Not under surveillance (14 days allowed). Essay on a pædagogic subject, and a sketch of a lesson.
   - B. Under surveillance. Questions on Method, etc.
2. Practical:—
   - A lesson of 30 minutes. (Half-a-day allowed for preparation).
3. Oral:—
   - Religion, German, Psychology, Pädagogik.

The Kommission classify the candidates after the examination, taking into account the testimonials presented before admission to it. Those who receive the mark I (*a*) may go to the University of Leipzig for two years and then pass out in Pædagogics; and, with the consent of the Ministry, those also who are marked I (*b*).

This provision for the academical training of deserving teachers does not exist in Prussia. It is doubtless of very high value, as forming a stepping-stone upwards after the Training College course; and it probably explains why the progress of teachers to good and even distinguished positions is much commoner in Saxony than in Prussia. In both countries alike it is the Colleges that examine for the Certificate, without apparently the evil consequence of a depreciated or uncertain standard. Official opinion at any rate scouts the idea of serious variation. It is admitted that one College may take a higher standard in one subject, another in another. But the general result is held to be substantially level. It may well be that the solidarity of German teaching, the existence of definite educational tenets, and the exact prescription of syllabuses secure a much greater uniformity than would otherwise be possible. A long course of preparation, with a certain amount of weeding as it proceeds, in addition to

the guarantee of the admission examination, certainly creates a presumption of tolerable quality in the students at the end of their time. The examinations are safeguarded, and more or less kept uniform, by the oversight of official experts; and if we remember that not more than ·5 per cent. of the trained students fail in our own second year's examination, the paucity of failures in Germany need excite no surprise.

(2.) *Women.*

As in Prussia, Colleges for women are on a somewhat different footing from those for men, as regards the sources from which the students are drawn, the conditions upon which they are received, and their destination. There are two such Colleges only, one at Dresden with a five-year course, and admission at 14 years of age; and the other at Callnberg, with a four-year course, and admission at 15. The Dresden College is entirely non-residential, Callnberg entirely residential. Of the 130 students at Dresden, all but 25, who live *en pension* in the town, reside at home. At both places the students are drawn from very various ranks of society. Some are daughters of officers, merchants, and officials of various kinds; others of mechanics and workmen. But there is this difference. The 8-class Practising School at Dresden is, so far as regards fees and instruction, a höhere Volksschule for girls, though, as it has an 8-year and not a 10-year course, it does not fulfil all the technical conditions of this class of school. The fees vary from £2 8*s.* in the lowest, to £6 a year in the highest class, and French (obligatory) is taught in Classes I. to V., English (optional) in Classes I. and II. The scholars are thus mostly children of parents in good circumstances, and it is from the school that the College is mainly recruited. At Callnberg the Practising School is an einfache Schule, which does not feed the College.

The consequence at Dresden is, that girls come into the College with a good foundation of attainments, and, including their school life, they spend 13 years in the institution, passing through a continuous course of instruction under a single management. They seem to be remarkably well taught, and their proficiency in modern languages is astonishing to an observer accustomed to the low English standard. I heard several of the English and French lessons, which are always given by German teachers qualified by residence abroad. The teacher of English, for instance, had spent 13 years in this country. The whole of the lesson is conducted in the foreign language, which the teachers of the higher classes use with just as much freedom and rapidity as if they were addressing French or English children. The students in Class I. seemed to miss nothing that I said to them in English, though I took no pains to simplify or slacken speed, and their oral translation of a long passage of *My Mother's Picture* into German was quite admirable.

There can be no doubt of the vast superiority of German over English instruction in modern languages; and no doubt either,

as I believe, that the best teacher of languages for an ordinary class is a native who has studied abroad. The English standard will never become satisfactory until, like the Germans, we insist upon the qualification of our own native teachers by foreign residence. So long as it is imagined that a foreign language must needs be taught by a foreigner, the German or the Frenchman will continue to find in our schools the opportunity which he wants, while our English teachers will remain half competent, and our scholars less than half taught.

The College building at Dresden is handsome and well planned, and excellently equipped with all that is necessary for teaching purposes. Still more imposing is the men's College at Plauen, a great pile with 144 fine rooms, and every possible convenience for its purpose. Both these institutions, one of which cost £27,000 and the other £50,000, are examples of the open-handed generosity of the Saxon Government towards education, and of the dignified scale upon which modern Germany plans its public edifices.

As in Prussia, the destination of the women students is not by any means always the Elementary School. They do not bind themselves at admission; they pay fees, and at the end of their course may do as they please. At Dresden, where the fee is £6 a year, about one-fourth become elementary teachers, another fourth teach in private schools, another fourth in families, and the remainder do nothing.

Students are admitted at Easter, by examination, and generally into the lowest class, but sometimes also into more advanced classes, after passing a higher test. The curriculum differs from that of men students in the omission of Latin, and the inclusion of French and needlework, and (optionally) English. The hours of work, which are felt to be very long, are thirty-four per week, not including preparation at home and the time required for optional subjects—English, Piano, Harmony, and Shorthand. They are apportioned as follows :—

	CLASS.				
	I.	II.	III.	IV.	V.
Religion	2	2	3	3	3
German	3	3	3	4	4
French	4	4	4	4	4
English (optional)	3	3	3	3	3
History	2	2	2	2	2
Geography	1	1	2	2	2
Sciences	2	2	3	3	3
Arithmetic and Geometry	2	2	3	3	3
Teaching { Theory	5	5	4	—	—
Teaching { Practice	3	3	—	—	—
Music	4	4	4	4	4
Writing	—	—	1	1	1
Shorthand (optional)	—	—	—	2	2
Gymnasium	2	2	2	2	2
Drawing	2	2	2	2	2
Needlework	2	2	2	2	2

The arrangements for practice in Teaching do not differ from those of the men's colleges; and the examinations are the same, except that less severe tests in practical teaching are imposed. Women are not, as in Prussia, qualified by a single examination for work in Elementary Schools.

(3.) *The Training College Staff.*

In men's colleges two-thirds of the staff employed in the College itself (as distinct from the Practising School) must have University degrees. In Prussia this qualification is required only in the case of the Director and the first teacher. The tutors may therefore be classified under four heads, according as they have been trained.

(1) In a Training College only.
(2) In a Training College, but with a further technical qualification.
(3) In a Training College and at a University.
(4) In a Gymnasium and at a University.

Those who fall under (1) and (2) must not exceed one-third of the whole number. At women's colleges, where many of the teachers are women, this requirement does not exist.

The number of teachers is always large, but it varies. Thus at Plauen (men), near Dresden, there are 18 for the College of 190 students, and the Practising School of 90 children, of whom five were trained at a University, seven at a Training College, six at both. At Friedrichstadt. where the students number 190, and the children in the Practising School 170, there is also a staff of 18. At Dresden Women's College, with 130 students, and 113 children in the school, a staff of 22 (10 men and 12 women), of whom two men and three women teach in the school only. It is prescribed that ordinary teachers must teach for 26 hours in the week, teachers of technical subjects 28 hours, and the Director 14.

Summary.

The two German Elementary School systems which have been here reviewed differ from one another in matters of external form rather than in fundamental principle. Political obstacles have prevented the passing of a general law in Prussia; the normal limit of the class is not only fixed materially higher, but is also less strictly observed, than in Saxony. The half-day school exists in Prussia as a way out of a difficulty, a measure of relief. In Saxony it is the accepted type. In Prussia the duties of inspection are entrusted in great measure to clerics who undertake them as a bye-work, and are not experts in Education. In Saxony they are performed exclusively by Government officials, but in both countries alike the Minister is the fountain head of a far-reaching

prescription, which rests upon an orthodox educational creed. Canons may vary a little according to locality, but the articles of faith are everywhere the same.

The English system presents a series of contrasts to both.

I. It cannot be said that any articles of educational faith exist in this country. We have not advanced beyond pious opinion. The Colleges and Schools work out their own salvation in their own way. The one goal visible to every school alike is the Grant, which is partly fixed and partly varied according to the quantity as well as the quality of the work. Any system of Payment by Results must be based on arithmetic, and tend to work arithmetically. It effectually secures those results which can be measured by figures; and hence in our rural schools the buildings and apparatus, which are matters of cost, are much more adequate than either in Prussia or in Saxony. But its primary tendency in Education itself is to depress quality and exalt quantity, to elevate what pays best into what *is* best; though no doubt this tendency may be and is much modified by the teacher's sense of duty, as well as by other influences.

The voice of Authority prescribes, it is true, a minimum and a maximum of subjects; but the difference between the two is left to the option of managers and teachers, who cannot put the question of finance out of sight. And again, it is not only the number of subjects that tends to increase, but also the amount of detail within each subject. Much acquisition of knowledge comes to be regarded as the main object of the secular teaching. Nor is this all; for the arithmetic of payments also leads to an equal scale of payments, and speaking broadly, to an inelastic sameness in the treatment of urban and rural, large and small, schools.

In Prussia and Saxony knowledge is the handmaiden of fitness for the duties of life. It is the moral, patriotic, and social training of the child that stands first in the teacher's mind. The subjects chosen for the Elementary School—the indispensable minimum—are those which conduce best to this end. And lest the true end should become obscured by side issues, the minimum must be, except in rare cases, the maximum also. It is of less consequence to teach much, than to turn a limited course to good ethical purpose. The work need not be extensive, but it must be intensive. From this standpoint, shortened hours and much grouped classes seem less open to criticism; the study of the same book for six years admits of the defence that its content is anxiously safeguarded, and that reading and re-reading under wise guidance is the best use of a good book. No doubt there is to be discerned in these practices a large measure of accommodation to circumstances, as well as in the excessive number of children normally entrusted to one teacher, and especially in the abnormal classes of Prussia. But these are the accidents of the situation. It is by purity of educational aim, a firm trust in unity of practice, and a general acceptance of definite pædagogic tenets, that the systems of Prussia and Saxony are fundamentally differentiated

from that of England. Prescription of the course which the teaching is to take follows as a logical corollary, and it is not a matter for discussion in Germany whether State-aided schools, which children must attend without choice, should or should not be left to develop their own individuality, with freedom as to books and syllabuses and methods, and even subjects. Wholesome as variety and enterprise may be in higher schools, which there is no compulsion to attend, and amongst which parents may choose, the whole conditions under which national elementary education is carried on are held to imply the need of substantial unity, and the subordination of individual opinion to expert authority. It follows also that prescription is not oppression The Teacher is a loyal officer of the educational army, and cheerfully follows the flag. He would not understand the meaning of liberty to lead his own regiment on his own theories. But for all that he is, and feels that he is, much more than the personification of rule. There is plenty of room within the bounds of his commission for the influence of his character and example, for the play of his intellect, and for the working of that subtle infection by which one mind acts upon others. It may be that prescription sometimes goes unnecessarily far; but this is a question of detail rather than of the main principle.

II. The contrast is no less striking as regards school attendance. Prussia and Saxony, with their much longer school history, have obtained nearly perfect regularity, and a public opinion which supports it. There is no difference of rule on this point for different localities, next to no exemption or half-time, and the penalty follows swiftly and easily on the offence. Yet rigour is qualified by concession. For the half-day plan in its stricter form sets all the children free for either the morning or the afternoon all the year round; and the compression of work into the morning hours so largely prevalent in Prussia during the summer liberates the afternoon for half the year.

In England the system of compulsion is still in its infancy. Up to a certain point we are in theory more exacting; but public opinion is fluid, the administration of the law cumbrous, lax, and uncertain, and punishment for offences can scarcely be obtained except in cases of long-continued disobedience. We also allow half-time exemption, exemption by attendance, or by a standard of attainment which greatly varies. We have not yet succeeded, as these countries have, in providing our schools with an unfailingly regular supply of the raw material. Nor have we secured the teacher against the serious trouble of capricious migration, or, by confining admissions to a fixed date or dates in the year, prevented the disturbance of work by a constant stream of new comers. Again, the hours of attendance in England are the same for all elder children, though slightly reduced for infants. The two German codes adopt a scale which varies according to class; and although in a Halbtagsschule the general curtailment of time may be too great, yet its principle may be so applied to the junior sections of schools, especially

perhaps to infants' classes, as to solve some practical difficulties without educational loss.

III. There are great differences also in the character and numerical strength of the teaching body. In Prussia and Saxony the number of teachers is comparatively small, because the half-day organisation and a high normal limit of the class are both dictated by economical reasons. No doubt it is too small, and Prussia's greatest need is the establishment of more classes under more teachers. But as two teachers never act in one room, each additional teacher means an additional room, which it is often difficult to obtain. We have seen that the volume of work varies according to the number of teachers employed in a school, and thus automatically adjusts itself to the number of children on the rolls,—an adaptation to circumstances for which there is much to be said.

The general supply of teachers is supplemented from time to time by an increase in the number of Training Colleges, *i.e.*, in the output of trained men and women. All fully employed teachers are qualified adults. The employment of unripe minds and bodies in the work of education is rejected as needless and unsatisfactory. In England, on the other hand, we fit the staff by a strict arithmetical process to the school; and only a very sparing distinction is made between large schools and small as regards syllabus. When we have to provide more teachers, the plan is to swell the army of the untrained, the partially qualified, and the wholly unqualified. We rely upon pupil-teachership not only as a means of training, but as an economy in staffing. The Prussian or Saxon youth improves his mind, and does not teach, till he is mature; the English Pupil-teacher improves his mind much less, and after long teaching practice does not teach better in the end. If it be asked how it is that the German teacher acquires his technical skill in so short a period of practice; the answer is that he starts well equipped with the all-important instrument of *language*. By its means he can create interest, make the most of what he knows, decorate his facts. He has ready to his hand the power of communicating ideas, of establishing an intellectual *rapport* between his scholars and himself.

In England, again, the number of women teachers greatly exceeds the number of men. In Prussia and Saxony the opposite is true. The excess of women in England is partly due to our possession of infants' schools and classes, which in those countries do not exist. But even apart from this fact, the preponderance of women is large. Probably there is no loss here, but great gain. An opinion of the Prussian Education Office already quoted in this paper shows that the Prussian authority would welcome the employment of more women. And it is felt in the same quarter that the Infants' School—which, as exemplified in some large towns, is our national distinction—is an institution which it would be well for the State to recognise.

IV. The last in a curiously long array of differences, extending to every important matter, relates to the religious question. In

the two German countries all the schools are denominational, and the State insists upon the religious instruction of every child, of whatever creed. Minorities are provided for, and any of the three great religious bodies—Evangelical, Catholic, and Jewish—may establish a school with the consent of the Authority. But no taxpayer escapes contribution to the support of the school. In England the attitude of the State is purely negative. Religious instruction is outside the purview of the Education Department, and though minorities are protected against the teaching of the school, no obligation rests upon parents to provide any other for their children.

In conclusion, I have to express much gratitude to officials and others in Prussia and Saxony, who have freely given me facilities, and supplied me with valuable information, at the cost of no little time and trouble to themselves. The kindness and courtesy shown me by the teachers whose schools I have visited, and by the higher officials to whom I have turned for assistance, cannot be too warmly acknowledged.

E M. FIELD.

Christmas, 1898.

NOTE ON IMPENDING CHANGES IN THE PROFESSIONAL TRAINING OF ELEMENTARY SCHOOL TEACHERS IN PRUSSIA.

The August-September (1901) issue of the "Centralblatt für die gesamte Unterrichts-Verwaltung in Preussen" contains the text of the new regulations to be introduced from January, 1902, into the course of training which the Prussian elementary school teacher has to undergo.

As is explained in Mr. Field's paper, there is no pupil-teacher system in Prussia, and the intending elementary school teacher devotes to the work of preparing himself for his professional duties the whole of the time which intervenes between his leaving the elementary school as a pupil and his return as a master. As a general rule, these years are divided between two institutions—the Präparanden-Anstalt and the Seminar. Hitherto the Prussian Government has not strictly regulated the course of study at the former institution, but has contented itself with indicating (*a*) that one modern language might be taught, but that (in order to prolong the period of general education) no instruction should there be given in pedagogy, school management or school practice; and (*b*) with prescribing the subjects for the entrance examination to the Seminar. This was no doubt due in part to the fact that only a minority of these places of preliminary training are directly under Government control, while not a few are in private hands. The course of time has revealed certain defects which this lack of regulation has occasioned, and the need of more equal and satisfactory preparation of the pupils for the Training College has been increasingly felt, while the necessity of drawing a more definite line of division between the tasks assigned to the Präparanden-Anstalt and the Seminar respectively has been universally admitted. Accordingly the new regulations prescribe a fixed curriculum and a detailed course of study for the Präparanden Anstalt as well as for the Training College.

The new time-tables are as follows:—

—	Präparanden-Anstalt.			Seminar.			
	III.	II.	I.	III.	II.	I.	
Pedagogy	—	—	—	3	3	3	
School Practice	—	—	—	—	4‡	4	
School Teaching	—	—	—	—	—	4-6	
Religious Knowledge	4	4	3	3	4	3*	One hour devoted to instruction in method.
Mother Tongue	5	5	5	5	5	3*	
Foreign Languages	3	3	3	2	2	2	
History	2	2	3	2	2	2	
Mathematics	5	5	5	5	5	1*	Instruction in method.
Natural Science	2	4	4	4	4	1*	
Geography	2	2	2	3	2	1*	
Writing	2	2	1	—	—	—	
Drawing	2	2	2	2	2	1	
Gymnastics	3	3	3	3	3	3*	One hour to instruction in method.
Music	3	4	5	4	4	4	
Agricultural Instruction	—	1	5	1	1	—	
Total	34	37	37	38	38	33-35	

‡ These hours are devoted to model lessons in the various branches and are included in the hours assigned to them in the time-table.

The programmes of work assign to the Präparanden-Anstalt much that was previously prescribed for the Training College—*e.g.*, in the mother tongue the greater part of the ordinary grammatical instruction is to be accomplished in the Präparanden-Anstalt, while in the Seminar increased attention is paid to literature; a larger number of the great masterpieces are to be read either in class or in private reading, and, where circumstances admit, some time is to be given to phonetics and to a study of the historical development of the language. It will be seen, therefore, that some portion of the time thus gained in the Training College is devoted to extending the range of the instruction, but the chief advantage which is hoped for is an increased thoroughness in the more directly professional preparation. The main change in the curriculum of the Präparanden-Anstalt is the inclusion of one foreign language, which is no longer optional and which is as a rule to be either French or English, though Latin may be retained where it has already been introduced.

A leaving certificate from the Präparanden-Anstalt is now accepted in lieu of the old entrance examination to the Seminar. An entrance examination, however, is still retained for those candidates who have not passed through the preparatory institution. In the same way the leaving certificate of the Training College admits those who hold it to temporary employment in the service

of the public elementary schools. After a period of not less than two years, and not more than five, all teachers have to undergo a second examination, which is not to be a test as to how far they have retained the knowledge they possessed on leaving the Seminar, but of their capacity to fulfil the duties of a schoolmaster. Into the regulations for this examination certain changes have been introduced, which are not here enumerated, but which tend to give the teacher greater freedom for self-development during the earliest years of his regular work in the elementary school.

A. E. TWENTYMAN.

September, 1901.

SCHOOL GARDENS

IN

GERMANY

SCHOOL GARDENS IN GERMANY.

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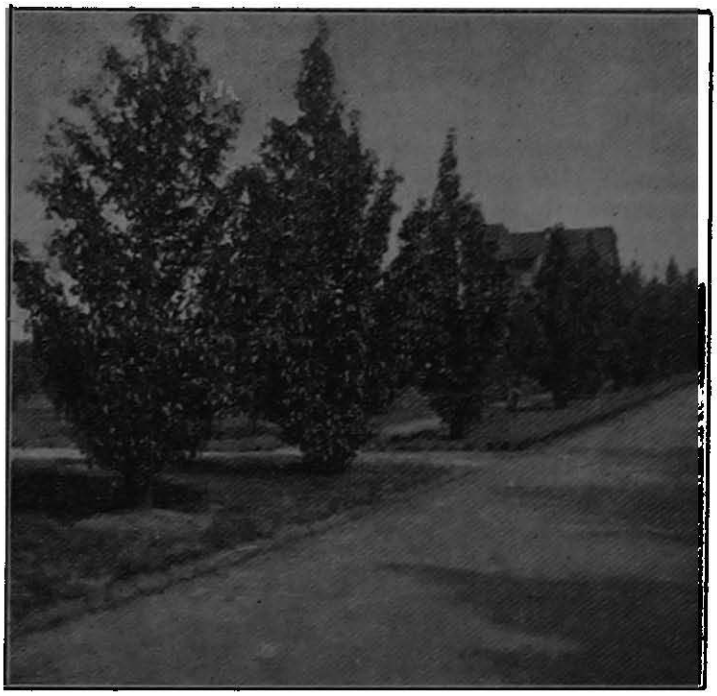


PYRAMIDS IN THE FRUIT GARDEN OF THE FRANKFURT-A-M. POMOLOGICAL ASSOCIATION.

SCHOOL GARDENS IN GERMANY.

INTRODUCTION.

In May, 1901, at the request of the Board of Education, I undertook to visit and report upon certain elementary schools in Germany where gardening forms part of the ordinary work of the scholars. In presenting the following report I beg to offer my sincere thanks both to the educational authorities and the principals of institutions, and to many head teachers, for the kindness and courtesy with which they received me, and for the unsparing trouble which they took to show and explain to me all that I came to investigate. I also hope that the observations and opinions which I record may appear as valuable to those who may read them as they have been interesting to me to collect.

1. A VISIT TO THE ELEMENTARY SCHOOL AT GEISTINGEN, IN THE VALLEY OF THE SIEG.

Furnished with an introduction from the authorities at Cologne, I paid a visit to the district inspector of schools at Siegburg. He told me that he had charge of about a hundred schools. The occupations of the people were mostly agricultural or horticultural, but there were a few manufactories of various kinds, such as weaving, pottery, and agricultural implements. A few years ago, the inspector said, the fruit trees were sadly neglected, and the peasants knew so little about fruit growing that they bought from the south of Germany worthless trees which were rejected by the growers there, and sold for a few pence to speculators, who made a good bargain by selling them at advanced prices to the Rhinelanders. More than this, the peasants of the Valley of the Sieg knew no more how to plant or tend their trees than how to choose them.

Mr. Goestrich found in the mayor of a neighbouring town a reformer, who began by planting some four thousand fruit trees of good sorts after approved methods. Local horticultural societies were ready to spread information. Working with such support, the inspector commenced to interest the schoolmasters in the village schools in the theory and practice of horticulture.

At the present time, after some ten years' work, he has established a school garden in all of his hundred schools, except in one or two towns in the district where land is too expensive. The inspector was anxious to combine theory and practice.

His first difficulty was that the teachers, although they had been taught science at the training college, had learnt nothing that served any practical purpose. There are, however, horticultural

schools at Cologne and Bonn. Arrangements were made to enable teachers to attend courses of theoretical and practical instruction in these institutions, and after they had introduced gardening into their schools, they were assisted by visits of inspection and by advice from the same source.

With respect to the sale of the produce, there is no local organisation for an export trade, but there is a ready sale for fruit and vegetables in the neighbourhood, and a master, besides supplying his own house, can make an increase to his salary amounting to £15 a year.

As an example of one of the best of the school gardens in his district, the inspector referred me to the school at Geistingen, which I visited on the 30th April.

Arriving at half-past eight, I found the upper class, which consisted of about thirty boys and as many girls, finishing their arithmetic lesson.

The head master, who was most ready to explain his methods, changed the lesson and gave the boys an oral examination in the growth of plants. His object was to show me how he dealt with the theory of the subject before conducting me over the gardens.

The boys were about twelve or thirteen years old. Their answers were prompt and full, and their language was correct and free from dialect. They were unquestionably interested in the subject.

The examination extended to the nature of the root and the working of the root hairs and their absorbing powers. Various experiments were discussed which the boys had evidently seen and understood. Something was then said of the various salts that were in solution and imbibed by the cells of the plant. The stem and the bark were next dealt with, and the course of the sap from the roots upward was traced to the leaves.

The evaporation of water from the leaves was explained, and various experiments called to mind to show the effect of sunshine. Then followed an account of the effects of cutting a ring in the bark (1) of a stem and (2) of a shoot, and the explanation of the results was readily given by the boys. This led to an explanation of the process of grafting, and some of the boys were here set to work to make a tongue graft, which they easily did.

At this point the clergyman entered the school to give the religious instruction, and thus the head master was set free to show me over the gardens.

Geistingen is an ancient and pretty village, situated in a hollow of the hills on the south side of the Valley of the River Sieg, a tributary of the Lower Rhine. The houses are grouped round a large Romanesque church, the older ones built with black timber frames and embowered in fruit trees, each a mass of blossom at the time of my visit. The inhabitants number about fourteen hundred. In the neighbourhood there are large and substantial farm-houses.

About sixty years ago, certain home industries were carried

on in the village. Besides making wine, the villagers used to weave cotton in their own houses. At the present time no wine is made, and the apparatus for making it is mouldering away in many of the houses. It pays better to grow grapes for the table than for vintage, and the weaving industry, following the well-known law, has concentrated itself at Crefeld, and hence the looms are silent in the village. The villagers, however, have another resource, for there has sprung up an important factory for making agricultural implements. The wages of the workmen amount to eight shillings a day, and the youths who, after leaving the day school, are obliged, if they work in the factory, to attend a continuation school, get not less than four shillings a day.

When the master began his work in the village some twelve years ago, fruit culture was at a low ebb. Old trees were decaying and were either not replaced at all by new ones, or else by trees of inferior quality. Thanks largely to the example of the master, who has co-operated with the local chamber of agriculture, the villagers have now taken to fruit growing as an important subsidiary industry. They spend much of their leisure time in their gardens, and they save much money, which they invest in co-operative societies for building houses and other purposes. They do not invest it in buying land, which is now very costly.

The school garden consists of the plot of ground which is provided for the head teacher along with a residence. In all rural schools in Prussia a house and garden are provided for the head master, and, according to present regulations, the older boys in rural schools must all learn gardening, or rather the cultivation of fruit trees.

The head master of the school at Geistingen has an exceptionally good knowledge of both the theory and practice of growing fruit and vegetables.

The soil of the garden is a rich loam, which is easily worked. The land slopes somewhat steeply from east to west. There are many kinds of fruit trees, both standard and espalier, including some of the best from France, America, Belgium, and England, besides, of course, Germany. There were also many named varieties of vegetables, among which were various sorts of peas, scarlet runners, cabbages, lettuces, and broad beans. It appears that a dish of broad beans and bacon, so common in England, is rare in Germany except in this locality. There were many standard roses, a few garden flowers, especially some fine auriculas, and a few strawberry beds. Currants, gooseberries, and raspberries had each a place assigned to them, and there were two or three beds of asparagus. At the end of the garden a semicircle of fir trees was planted to form a shelter. The frost in winter is apt to be severe, and last February the thermometer sank to 15° R. below zero, and much injury was done. In this garden the boys learn all the usual gardening operations, and what are the best kinds of fruit and vegetables to grow in their village. They also learn the art

of grafting and budding. The walls of the school-house were covered with apples, pears, cherries and other trees, and the boys were expressly taught how to turn wall space to good account.

The time-table of the school contains the usual subjects, namely, German language (speaking correctly, reading, and composition), arithmetic, geography, history, and natural science. Besides this, there is drawing, music, and drill. The theoretical study of plant life is given during the time allowed for natural science, which amounts to four lessons a week. In the winter time, when the plants are not growing, time is spent in studying the effects of insect pests on wood, bud, and on root and fruit. The instruction is given orally by the master, but the readers contain a good many lessons which bear upon fruit and flowers, and their insect friends and foes.

The master informed me that he had taken advantage of instruction in horticulture which had been supplied by the local Chamber of Agriculture, and that with the aid of pecuniary assistance from the Government he had also attended short courses both in the early summer and autumn in the famous horticultural establishment at Geisenheim on the Rhine. The summer course lasts three weeks, and the later course one week.

At the present time the Prussian Government has established by law throughout the country both district chambers of agriculture and agricultural schools, where the sons of peasants can learn what is necessary for them to know. For an introductory knowledge, the local agricultural schools are useful; while for advanced study, courses at Geisenheim and elsewhere are open to teachers.

Not long ago the head master of Geistingen school had given a paper at a teachers' conference, in which he explained his principles and his practice.

He maintained in this paper, which he gave me to read, that his object was educative and not utilitarian. He wished to train up a peasantry who would be able to think as well as to act. He contended that in these days to stand still was to go back, and that a blind practice of the routine of their fathers only led to pecuniary loss. He held that the study of plant life, besides affording practice in observation, experiment, and in drawing inferences, also threw much light on the human organism, and that the children would learn the need of air and light and sunshine, and sleep and cleanliness, and understand the danger of excess and defect in these matters. He believed that the combination of work in school with garden work out of doors led the boys to a far clearer understanding of the first principles of science than merely reading about them in books and learning them off by heart.

Certainly an inspection of the school readers confirmed the opinion of the head teacher that the children's memories had been

formerly overtaxed. There were two of them, both closely printed on poor paper, and in rather small type. One reader contained 337 pages, and included chapters on history, geography, natural history, natural philosophy, physiology, and chemistry. The other reader contained 600 pages, and, besides chapters on literature, formed an encyclopædia of general information.

The boys worked in the gardens in the afternoon and at other times when convenient. They did not spend less time than formerly over their books, but they made better use of their time.

The school consisted of only some 150 children. There were three teachers, all trained and certificated, one of whom, the teacher of the younger children, was a mistress.

As the master accompanied me to the station, he pointed out various cottage gardens which showed by the superior condition of their fruit trees and young vegetables how considerable was the effect of his teaching. "But after all," he said, "it is not so much the amount of information or skill that I may impart which counts with me, as the spirit which I have succeeded in arousing among the boys, and the happiness which I have introduced into their lives. Such is the foundation I am satisfied with laying, and on this in their after life they will be able to build with success. In the end the result of the work which is done in any school will depend upon the individual methods of the teacher."

"Of late years," he continued, "the teachers have been allowed a considerable amount of freedom in devising and executing their plan of work. Of this freedom I have taken full advantage, and if I have curtailed the memory work I am more than satisfied with the result of introducing practical work in its stead, and I find that the parents who used to look upon school as so much waste of time, which their children had better spend in earning money, now begin to show a more friendly spirit towards the school, and are ready to co-operate with me in encouraging the boys to work in their gardens at home. The children also communicate to their parents some of the hints which they have derived from me."

As regards the science teaching in his training college, the master assured me that he had derived but little benefit from it, because it was all memory work, and had been learnt by rote from books.

It must not be supposed, of course, that all the school gardens in Prussia are as well organised as this one at Geistingen. The Government issue general regulations that in all rural schools gardening shall be pursued, but some of the teachers are unable to deal with the subject successfully, either through age or inexperience. In these cases allowance is made. The parish authorities assist the master by supplying him with road scrapings, and also a certain amount of manure.

2. Syllabus of a Course of Instruction illustrating the Practical Work in the School Garden at Geistingen.

The following syllabus shows the nature of the instruction which was given in the school, to illustrate and explain the practical work in the garden. The children were divided, as is usual in German elementary schools, into three divisions—namely, a lower, an intermediate, and an upper. In the lower division no special syllabus was arranged. The course of instruction in the two other divisions extended over two years.

Course of Instruction in Natural History for Country Schools.

Middle Division.

First Year.

Lark, sparrow.
Cockchafer.
Snowdrop and violet.
Swallow, titmouse, and nightingale.
Flowering fruit trees and bees.
Robin and hedgesparrow.
Poisonous crowfoot and nightshade.
Poisonous mushrooms.
Water wagtail, thrush.
Rye, wheat, oats, barley.
Potato.
Hare and rabbit.
Beans, peas, and clover.
Hedgehog, bat, mole.
Hen, pigeon, duck, birds in winter.
Dog, cat, mouse.
Ox, goat, pig, sheep, horse, ass.

Second Year.

Starling, wren, cuckoo.
Rose, forget-me-not.
Cabbage—butterfly and caterpillar.
Poppy.
Wasp, hornet, ant.
Corncockle, foxglove.
Turnip-fly and blue-bottle.
Worms, ladybird.
Turnip, carrot, cabbage, onion.
Crow, owl.
Herring.
Shrew mouse, squirrel, weasel.
Oak, fir, beech.

Upper Division.

First Year.

The parts of a plant:
- Root, stem, leaf, buds, flowers, fruit, seeds.
- The nature of each part of a plant and how it acts.
- Absorption and transpiration. Leafgreen.
- Effect of light and warmth.
- Food of plants. How derived from the soil. The Cambium layer. The annual rings.
- Food of plants—(1) gaseous: oxygen, hydrogen, nitrogen, carbon dioxide; (2) mineral: sulphur, phosphorus, calcium, potassium, iron.
- How plants supply animals with food.
- Supply of matter to plants for food by stable manure, compost, wood-ash, artificial manure, and diluent substances such as lime.
- Effect of climate on plants.
- Water—water in the ground; how plants absorb water.
- Seeds and cuttings.
- Rich and poor soils; improvement of poor soils.
- Clay, peat, lime, loam, sand, mixed soils.
- Simple analysis of soil.
- Manuring, humus, irrigation.
- Fruit trees and their improvement.
- The parts of a fruit tree.
- The wild stock and its treatment.
- The chief kinds of improved fruits.
- Grafting—crown grafting, etc., budding.
- Improvements of stone fruit, gooseberries and roses.
- Treatment of young trees in their nursery.
- Treatment of berries, viz., gooseberry, raspberry, strawberry, currants.
- The vine and its treatment.
- The hazelnut.
- Espaliers—special attention to the walls of the schoolhouse.
- Choice of sorts, according to aspect, soil, temperature, rainfall, and altitude.
- Care of fruit trees.
- Planting fruit trees. Trimming root and crown.
- Watering. Support.
- Attention needed during the first year after planting.
- Renovating fruit trees.
- Diseases of fruit trees; insect pests and remedies.
- Mildew, canker, moss, gum.
- Injury from hail, snow, hares, rabbits, and various birds and insects—starlings, beetles, codling moth, wasps, spiders, woodlouse, onionfly, etc.
- Ripening of fruit.
- Sorting and storing fruit.

Second Year.

The vegetable garden:—

Division of the ground.
Trenching and manuring.
Sowing seed.
Planting, watering, weeding.
Forking, hoeing.
The hotbed.
Various kinds of cabbage, cauliflower, broccoli.
Lettuce and endive. Radish, spinach.
Carrots, turnips, onions, celery.
Beans, peas, scarlet runners, asparagus.
Preserving vegetables.

Field crops:—

Preparing the ground.
Ploughing, harrowing, rolling.
Wheat, rye, oats, barley, potatoes, beetroot, vetch, clovers.
Grasses for pasture.
Weeds in garden and pasture and their removal.
Necessity for manuring pastures and tilth.
The enemies of plants and their destruction.
Moles, fieldmice, centipedes.
The friends of plants—bees, hedgehog, ladybird.

The master by no means taught all the details which are included in the above syllabus. It was a source of satisfaction to him that while the syllabus was a guide to him in his work, he was not tied down to the letter of it. He was at liberty to omit and to add at discretion. He found time, for example, to give lessons on the laws of health affecting both man and beast.

3. A Brief Survey of the History and Present State of School Gardens in Germany.

The introduction of gardening into the course of instruction in elementary schools is no new movement.

In 1814 instructions were issued in Schleswig-Holstein to the effect that "in view of the future occupations of children in country schools, most of whom will be engaged in agricultural pursuits, they should in addition to their ordinary work receive some instruction in the culture of fruit and vegetables."

In 1817, in Nassau, instructions were issued to the effect that a garden should be provided for every village school besides a playground, in which the children should receive practical instruction in fruit culture. The district school inspectors have paid attention to this subject more or less ever since, and in 1885 special organisers of school gardens were appointed to inspect and advise the work

in the school garden. The Wiesbaden Agricultural Society encourages school gardens by offering prizes for the successful cultivation of fruit. Care is taken that the work in the school gardens does not enter into competition with local fruit growers, the number of trees being limited to the quantity which is needed for instruction.

School gardens are, however, by no means universal. Among the most successful are those at Langenhain, near Eppstein, Eschhorn, Hilchert, Alsbach, and Kaden, near Westerburg.

In 1819, in Prussia, instructions were issued that the course of studies in village schools should include some instruction bearing on agricultural subjects.

The instruction has not been universally carried out, but it has been attended to in various places, according to the interest which the school authorities and their school inspectors have taken in the subject. At Köslin no teacher is appointed to a head-mastership unless he has a sufficient practical knowledge of fruit culture. At Oppeln, the regulations dated 1867 provide for instruction in fruit culture, and also those for Lauenburg, dated 1868.

In the regulations for elementary schools in East and West Prussia, dated 1845, and still valid, provision is made for supplying the teacher with a fruit garden. In Königsberg the size of the garden is prescribed to be forty-five square rods, and the school inspector is entrusted with the duty of seeing that it is properly cultivated. The instruction is to be in growing fruit, and not vegetables. There are a great many schools in this neighbourhood where the school fruit garden is more or less a success.

In Mecklenburg-Schwerin, regulations in respect of fruit gardens were made first in 1827. All village schools were to be provided with them. In 1832 the size was fixed by regulation to be fifty square rods. In 1846 the provision of this instruction was left to the discretion of the teacher. At present the school garden is the exception and not the rule.

In Bavaria school gardens do not form a part of the obligatory programme, but the Government encourages them, and the school inspectors are instructed to report upon their progress.

In the Upper Palatinate at the present time the regulations provide that each country school shall be provided with a fruit garden of at least fifty square rods. The local chamber of agriculture supervises the school gardens through members of its committees, and assists the teachers. A special scheme of instruction is drawn up and preserved for the use of the district inspector, who reports upon the results. Every effort is made to interest all persons who are concerned with fruit growing, whether in an official or private capacity, in the work of the school gardens.

It will be noticed that many of the school gardens in Germany are confined to fruit growing.

The combination of the practice and theory of growing vegetables,

flowers, and fruit is common in Austria. The first garden of this kind to be found in Prussia dates from 1881. This was the work of Herr Schommertz, the teacher of the school in Gerderath, in the Rhine Province. He was encouraged in the work by the district school inspector and the school authorities. The parish contributed £20 towards starting the garden, the expense of which was afterwards borne by the Aachen Arts and Industries Association.

The subject of school gardens from the year 1882 onwards has formed a frequent topic for debate at the periodic conferences of teachers. At one of these, held in 1886, Herr Schommertz submitted his scholars to an examination before the members of the conference to show (1) how he connected his theoretical instruction with practical studies in fruit growing, and (2) how he connected this garden work with the other subjects which formed part of the usual course.

The first part of the examination showed what the boys could answer about:—

(1) Diseases of trees—gum, canker, blight, mould, etc.
(2) Noxious insects affecting (*a*) roots, stem, twigs and boughs, leaves, flowers, fruit; (*b*) bush fruit; (*c*) vegetables; and modes of combatting these attacks.

The second part of the examination displayed the following knowledge connecting the garden with the other work:—

(*a*) Natural Science:—

(1) Classification of the plants in the garden.
(2) The names of all the plants and their use.

(*b*) Arithmetic:—

(1) Estimate of the cost of producing a crop in one of the beds from sowing to marketing.
(2) Estimate of the amount of water draining away from the garden in twenty-four hours.
(3) Calculation of the height of a tree from the measurement of its shadow.

(*c*) Drawing:—

(1) Freehand drawing of leaves of plants from nature.
(2) Plan of a part of the garden drawn to scale from measurement on the spot.
(3) Perspective drawing of the beehives and stand.

(*d*) Geometry:—

(1) Calculation of the area of a circular portion of the garden.
(2) Laying out a rectangular bed of given dimensions.
(3) Measurement of the slope of the garden.
(4) Calculation of the quantity of water contained in a cylindrical basin in the garden.

(*e*) Practical knowledge of gardening :—

(1) Treatment of a garden bed.
(2) Treatment of a manure heap.
(3) Exposition of practical experiments as follows :—

(*a*) With nineteen different kinds of grasses.
(*b*) With several different kinds of potatoes, and same potatoes differently planted.
(*c*) With "Triumph" oats in respect of (1) deep cultivation, (2) different manures.

(*f*) Fruit trees :—

(1) Grafting, budding.
(2) Planting a fruit tree.
(3) Treatment of the bark.
(4) Summer pruning of a pyramid tree.

Saxony.

Owing to the influence of Dr. Lotz school gardens of the more comprehensive type have been spreading in certain parts of Saxony. Dr. Lotz commenced a school garden in Neustadt, near Coburg, in the year 1885. The school was a large one.

The area was two roods and a half. It was divided by paths, a yard wide, into six large rectangular beds. The two northern beds contain a nursery for fruit trees and seedlings, vines, and a few ornamental shrubs. This part of the garden is worked by the boys of the first class, under the guidance of their teacher.

The remaining four beds are subdivided into from fifty to sixty beds, each in charge of a scholar, the girls as well as the boys each having a garden bed. The gardening is carried on during the school hours.

The procedure is as follows :—

A row of ten to a dozen boys or girls dig the ground and break the clods, a similar row rakes the surface even, a third row weeds the ground, keeps the paths clean, removes stones, etc., to a proper place. Each class has about 150 square yards, and when the surface has been thus duly got in order the children, under the guidance of their teacher, draw out in class a number of beds of various patterns—rectangular, polygonal, and elliptical—in number from fifty to sixty, one for each child, as required. These are subsequently staked out in the garden, and each child takes possession of one for the season, cultivating it according to his or her individual taste for vegetables and flowers. In the middle the teacher has a model bed for the guidance of the children, but individual tastes are encouraged.

In all parts of the Duchy of Coburg school gardens of various kinds are plentiful, both in elementary and secondary schools.

In 1895 Dr. Lotz moved to Pössneck. He has established there the largest school garden in Thuringia. It contains 33 acres. About a tenth of this space is devoted to trees and shrubs, and also to a botanical section, including (*a*) poisonous plants, (*b*) medicinal plants, (*c*) grain crops, (*d*) kitchen vegetables, (*e*) annuals and biennials for the flower garden, (*f*) bog and heath plants. The rest of the space is divided into small plots for individual scholars, some 600 in number, and a section for roses and fruit trees. The town contributed a sum of £125 for the first outlay, and grants £15 towards annual maintenance.

At Altenburg since 1886 there has been established a school garden for a large girls' school.

There are also school gardens of more or less importance at Schmölln, Ronneburg, Gera, and Jena.

4. School Gardens in Connection with Continuation Schools.

In Prussia the organisation of continuation schools in country districts was handed over in the year 1895 to the Minister of Agriculture and Woods and Forests. Before that it had been under the care of the Minister of Public Instruction.

The chief defect of the old plan was that the studies in the continuation schools were a mere repetition of the work of the day schools, which disgusted the students and failed to secure the interest of their parents.

In the year 1897 the Minister of Agriculture presented a Memorandum on the growth and present condition of continuation schools in the country districts of Prussia, and as a result a set of joint regulations was issued on behalf of the Minister of Agriculture and the Minister of Public Instruction.

According to this, in drawing up a plan of study for country continuation schools, care must be taken (1) to preserve continuity between the instruction there given and the work of the elementary day school, and (2) not to endanger the character of the school as a place of general training, and (3) to connect the course of studies with the practical requirements of the students in their daily occupations. It is pointed out that studies in German, viz., reading and composition, in arithmetic and mensuration, and in natural science, can all be made to bear upon the pursuits of those who are living and working in country districts. What is needed is a general training in the substance of which special attention shall be paid to practical experiments with soils, fruit trees, vegetables, and grain or grass. Bee-keeping and studies of insect pests are also encouraged. The instruction, however, is by no means to be professional, but the completion and extension of the day school course, leading up to a better understanding of the principles of plant and animal

life and power to enter into the meaning of books and periodicals bearing on agricultural pursuits.

Mention is made of the difficulty of finding suitable teachers in country districts. The most feasible plan has proved to be that of encouraging teachers in rural schools to attend special courses at farm schools, as, for instance, that at Weilburg, and also the courses in fruit culture, which are provided in almost all the provinces. At Oppeln a special organisation has been attempted. Here a peripatetic teacher in agriculture—a specialist—has been appointed to visit each of a group of six villages which combine for the purpose, on one evening in the week, in order to give instruction, of two hours' duration, according to a specified syllabus. In each of these villages the village schoolmaster gives on one other evening in the week instruction of two hours' duration of a general nature, in which, however, the special knowledge required by people who work in the country is borne in mind. The instruction is given throughout the winter, and is gratuitous.

The special instruction in agriculture deals with the food of plants, manures, seeds, the treatment of the principal crops and vegetables. The general instruction includes natural science and the principles of agriculture, together with arithmetic and German. The instructions point out that as school gardens become more common it should be possible to introduce more practical illustration than has hitherto been found feasible.

(See Denkschrift des Landwirtschaftsministers, 1897, über die Entwickelung und den Stand der ländlichen Fortbildungsschulen in Preussen in Jahre 1896-97.)

5. Provision of Instruction in Gardening for Teachers in Elementary Schools.

The regulations provide for instruction in gardening and fruit culture in the training colleges. Such regulations were made in 1872 and existed earlier. The regulations are carried out with varying degrees of success. One of the best schemes (dated 1878) is that of the training college in Pomerania. Here, in addition to the usual theoretical instruction, the following practical work is carried out by the students. (1) General garden work, viz., trenching, manuring, hoeing, etc. (2) Fruit trees, pruning, grafting, budding. (3) Vegetables, seeds. Each student has to raise five sorts each year according to a plan. Treatment of a hot-bed of strawberries and asparagus. (4) Flowers, including window gardening. (5) Ornamental shrubs: making and trimming hedges, keeping lawns.

In Westphalia a similar scheme was established at the Münster Training College in 1880.

In some of the training colleges the garden has tended to become a means for illustrating studies in botany rather than gardening.

At Weissenfels the training college has been in possession of a garden since 1837, and here as well as at Alfeld, in Hanover, theoretical and practical instruction is given.

Most of the training colleges in Saxony are provided with gardens.

In Thuringia there are gardens at the training colleges in Coburg, Gotha, Greiss and Rudolstadt. At Greiss the students spend some hours a week in the culture of fruit trees.

In Würtemberg there is a garden in connection with the college, in which the students receive instruction from the teachers of natural science.

In Baden the training college at Meersburg, and in Hesse the colleges at Friedberg and Alzey, all have gardens.

The next important aid to practical gardening is to be found in the short courses for teachers which have been provided in connection with the horticultural establishments and the agricultural schools and winter courses.

In Prussia, as has been already shown, according to regulations issued in 1874, teachers in schools and training colleges are invited to attend courses in gardening and fruit culture in suitable centres. For several years past such courses have been given at the Government institutions of Proskau, near Oppeln, and Geisenheim, the expenses being paid for out of funds provided by the Ministers of Agriculture and Public Instruction. Similar courses have been given at Cassel, in the Pomological Institute at Bitburg, near Trier, in the various farm schools, and also at Weilburg, Crefeld, Hanover, and Bonn. The teachers who attend these courses receive from Public Funds a contribution which nearly covers their expenses.

In the year 1896 there were in Prussia in all twenty-one such courses attended by 258 teachers. The courses consist of a spring and summer section, about three weeks in the earlier and ten days or a fortnight in the latter.

6. A Visit to the Elementary School at Oelsberg, in the Valley of the Ruhr.

The next school garden which I visited was at Oelsberg. Oelsberg is a pretty village some twenty miles higher up the River Ruhr than Arnsberg, in Westphalia.

It is surrounded by well-wooded hills, the lower slopes of which are well cultivated. The river wanders through green meadows. In the summer many patients from the Kneipe Kur in the village come to walk up and down barefoot in the watery grass. A prettier spot for a Kur it is hard to find, or a healthier. There are a few industries in the village. There is a factory for making iron smallware, such as dishes and saucepans, and also furniture and cabinet making. There is prosperity in the aspect of the place.

The schoolmaster has charge of a school of 240 children. In the upper division there are sixty boys and as many girls. He has

charge of the boys, while a mistress takes the girls. The middle division consists of seventy children, under one master, and the younger children, numbering over 100, are taught by a mistress, who takes half of them in the early part of the morning, and then, dismissing these to make room, takes the other half for the rest of the time.

The master has taught the boys the theory and practice of growing fruit trees for the last twenty-five years. On all hands it is recognised that owing to his teaching, the fruit gardens have been wonderfully improved in the neighbourhood. When he began his work the fruit trees were neglected, and were replaced, if at all, by bad sorts. At the present time the master, besides teaching his own boys, has the superintendence of fifty other schools in the neighbourhood. These he visits chiefly during his holidays, and gives advice. Once in three years he issues a report on their condition to the educational authority at Arnsburg.

The master's salary is £130 a year, besides a house and garden. For inspecting the other schools he gets £10 a year in addition; most of them can be visited on foot or by a short railway journey, so that his travelling expenses are small.

The subjects studied by the boys in the master's class are as follows:—

Religious Instruction	5½	hours.
German	8	,,
Arithmetic and Geometry	5½	,,
History and Geography, Natural Science	5	,,
Drawing	2	,,
Singing	2	,,
Drill	2	,,

The hours are from 8 to 12 in the morning and from 1.30 to 3.30 in the afternoon.

Some of the practical work in connection with the fruit growing is done in the class-room. The boys are told to bring suitable shoots and stocks, and they learn to make various grafts and buds in the room. Later they perform actual work of this kind out of doors in a nursery provided for the purpose. Near the school the parish has given a sheltered slope, about an acre, rent free. The master buys the young fruit trees, wild stock, etc., and manure, which, owing to the local system of sanitation, is easily obtainable. The boys in this school learn nothing of vegetable gardening. The garden contained a large number of young fruit trees in various stages, viz., young stocks, stocks which the boys have grafted, and standard trees, with their crowns properly formed and ready for transplanting. A large section had just been sold off and was cleared. The sorts are such as the master has found by long experience to be best suited to the locality which, being fairly high up, requires sturdy trees. The village is too high up for the culture

of the vine. The trees which grow best are apples and pears, and a demand for cherries is growing. Peaches and apricots will not ripen. The demand for the master's trees is so great that the parish is providing a larger plot of ground. The boys leave school at fourteen, and there is no continuation school in the village.

The master said that he had acquired his skill in gardening from his father and from practice. The subject he said was taught at the training college, but he derived little or no practical advantage from the instruction which was given there. Some of the teachers of the schools which he inspects attend short courses at certain horticultural establishments, such as that at Geisenheim. The expense of the course is partly paid by the parish, and partly by the Government, and partly by the teachers themselves. The total cost need not exceed £5, and there is included in that, besides good living, some amusement, especially in the way of expeditions.

The master said that the local agricultural classes were more concerned with farming than fruit-growing, and therefore teachers could not learn so much from them as by attending the other courses described. During their absence from school while attending such classes the school authorities usually manage to send a teacher on supply.

7. The Views of Mr. Plett, the Headmaster of the Oelsberg School, upon the Theory and Practice of Gardening for Elementary Schools.

The master, Mr. Plett, of Oelsberg, had drawn up a plan of instruction in fruit-growing for elementary schools to the following effect:—

(1) *General Observations.*

In the year 1880 the Prussian Government called upon all teachers in the country districts to unite with other authorities in promoting fruit culture, and success or failure was to be noted in the annual report. It seemed both to the fruit growers' associations as well as to the Government that the teachers had special opportunities for encouraging fruit-growing among their scholars, for awakening a more general interest in the subject, and for spreading a sound knowledge of the best methods in country districts.

Instruction in fruit-growing, writes Mr. Plett, has both an educational and an economic value. It awakens a pleasure in Nature; it teaches the need of order, gentleness, and neatness, and it stimulates physical activity. It is not without a moral effect. It teaches boys to respect other people's handiwork and property. It substitutes useful occupation for mischievous idleness. Teachers need not fear that they will not succeed if they attempt fruit-

growing. A little energy and determination will supply all that is needed, and the pleasure in the craft grows with its pursuit.

(2) *The School Garden.*

The garden should be sheltered from the prevailing winds and from storms. It should be fenced in with a hedge at least four or five feet high, and means should be taken, if required, to keep out hares and rabbits. It should have a sunny aspect, and the soil should be as deep and good as possible. In size it should be not less than 200 square yards. There should be at least ten square yards for seedlings; twenty square yards for wild stock—*i.e.*, 200 stocks at a distance of about a foot apart.

Eighty square yards are needed for 200 improved stocks about two feet apart. There should be a reserve bed of about ninety square yards.

(3) *The Scope of the Instruction in Fruit-growing.*

The plan of instruction should contain what is most essential, viz. :—The kinds of fruit best suited to the locality, the planting of fruit trees, grafting and budding, and forming standards and espaliers.

The boys should also learn, besides planting and tending the trees, how to destroy the insect pests and other enemies, how to deal with the diseases of trees, and the storing of fruit. This should be the first course, and the training of cordons and shaping trees should follow.

(4) *The Instruction should be both Theoretical and Practical.*

1. Theoretical Instruction :—
   - (*a*) Exposition of the subject and demonstrations by the teacher.
   - (*b*) Questioning and explanation.
   - (*c*) Appropriate reading.
   - (*d*) Oral reproduction and recapitulation under the guidance of the teacher of what has been learnt by the scholars.
   - (*e*) Written exercises.

The written exercises should be such as follows :—" On the improvement of fruit trees "; " On planting fruit trees "; " The care of fruit trees "; " The diseases of fruit trees and their remedies "; " On the enemies of fruit trees," etc.

There is no branch of instruction, continues Mr. Plett, which lends itself so thoroughly to treatment through object studies. There are the young fruit trees in the garden for the children to watch and tend. Child and tree grow together, and in no branch of study is there less need for the teacher to substitute in his lessons

information of his own for observation and first-hand knowledge on the part of the child. If once the boy has learnt to take an intelligent interest in some special portion of the world of nature, and of outdoor life, his education is proceeding on sound lines. Such an interest it is for the school to awaken, and there is no better means than instruction in fruit-growing.

2. Practical Instruction.—The teacher must, however, by no means confine himself to theoretical instruction. He must introduce the boys to corresponding practical work outside in the garden in the free air. Here the boys must learn to carry on with their own hands what they have learnt in the class-room. It is true that the efforts of the boys will not all be attended with equal success, and occasionally a tree will be injured by clumsy manipulation; but such accidents are unavoidable, and omelettes cannot be made without breaking eggs. The master hand is acquired, and is not a birthright.

On a fine afternoon in March or April the master takes his older boys into the garden. The scholars stand round the master in a half-circle. The master then performs and explains different kinds of grafting and budding. Then the boys each attempt one kind. The master then criticises each performance in the presence of all the boys, and in case of defect shows how it may be improved. Gradually, as the boys acquire dexterity and knowledge, they may be entrusted more and more with work in the fruit garden.

If the teacher wishes to demonstrate the planting of a fruit tree he takes his older scholars to the garden of a neighbour who has purchased a young tree, with a view to showing the boys how to plant it. As before, the boys stand round the spot in a half circle, while the master explains the size of the hole to be dug, the nature and treatment of the soil, the prop, the trimming the roots, and the planting in the earth. After this the scholars proceed to plant trees for themselves under guidance from the teacher.

In the same way the master deals with the trimming of the crown, the cleaning of the tree, and the manuring it. Mere telling the boys effects little. They must carry out the work with their own hands. The boy who works with his own hands works with pleasure and zeal. What a source of satisfaction it is when a boy finds that his graft, that is a graft which he has made, has succeeded, and with what pleasure he watches the further development of "his" tree. Therefore, give the boy a knife, and, under the guidance of the master, let him use it freely for grafting and pruning.

After leaving school a boy will not easily lose his interest or his skill in fruit-growing if he has the opportunity, as a country lad probably has, of keeping them up.

The teacher will show the boys how to select sorts that are suitable to the locality and why they are so, and how to shape the crown of the tree, and how the stem must gradually decrease in

size as it grows upwards, and how the roots and the crown should be properly developed. Neglect of care in planting and setting the young trees is the cause of much failure in cottage gardens, and great stress should be laid on this in schools. The care of trees must be carefully practised. Moss, caterpillars, and dead wood must be removed by the boys.

In order to encourage useful birds, the boys should make and hang up boxes in the trees for birds to nest in which are friends to fruit trees. The boys are delighted when they see their boxes occupied by starlings, titmice, and other birds that nest in hollow trees. These boys will not be of those who destroy birds' nests or are cruel to animals. They will rather protect the birds as their best allies in keeping down injurious insects.

The example of the teacher and his scholars in course of time produces an excellent effect on the neighbourhood, and many a lazy person, stimulated by what he sees done by others, will be prompted to undertake fruit growing on his own account.

(5) *Arrangement of the Work.*

January—

Cleaning fruit trees from moss and old bark; lime-washing; cutting away dry wood in the crown, and removal of unnecessary branches. Covering the wounds with proper wax (in place of tar, which is injurious). Cutting and storing scions of good sorts.

February—

Spring pruning. Destruction of enemies of fruit trees.

March—

Complete the work of the preceding month. Planting fruit trees. Preparing hole. Trimming roots: Prop, planting in soil, binding to prop.

April—

Improving stock by various grafts, tongue grafts, crown grafts, etc. Budding, shaping the crown of the young fruit tree.

May—

Complete the work of April. Watering fruit trees.

June—

Diseases of fruit trees. Injury from frost. Canker. Blight.

July—

Diseases. Gum. Sterility.

August—

Inoculating fruit trees.

From April to the end of August attention must be paid to weeding and keeping the soil clean.

September and October—

Gathering and storing fruit. Study of fruits which are suited to the climate of the school.

November—

Manuring the soil. Preparing ground for spring planting. Cleaning fruit trees.

December—

Study of the soil, climate, and situation of the fruit garden. Protection against frosts and noxious insects.

8. School Gardens in Town Schools. A Visit to Plauen Higher Grade School, near Dresden, Etc.

So far, my observations on school gardens in Germany have related to rural schools. In order to show that work of this kind is not confined to the country districts, and that in town schools also gardening has been introduced with much good effect, I will next describe my visit to a higher elementary school at Plauen, near Dresden. Plauen is a large and populous suburb. The Bürgerschule, or higher grade school, is spacious, convenient for teaching, and admirably equipped.

The school garden is like a small park. The aim of it is to illustrate all the natural history that is taught in the science lessons. Hence three sections—(1) growing plants, viz., (*a*) flowers, (*b*) vegetables, (*c*) field crops, each in small quantity, but planted and tended each bed by a separate class, (*d*) fruit garden—with examples of grafts and cordons. (2) Rockery. Here the rocks and soil were arranged to show the geological structure of the neighbourhood. (3) A small plantation consisting of specimens of some of the trees which grow in the vicinity, especially various sorts of firs, pines, larch, etc.

The garden is large, The town has given the teacher about an acre on the sunny side of the school buildings.

The fruit garden contained about 200 square yards. It was arranged as follows:—Near the path were cordons, trained on wire; in the next rank were pyramids, and behind these there were standard trees of taller size. Apples, pears, cherries, medlars, and walnuts were among the commonest. On a sunny wall in this part of the ground were apricots and peaches. Gooseberries and currants found a place between the other trees.

In another part of the ground were several small beds about seven yards long and one and a half wide, in which were planted all sorts of vegetables, lettuce, cabbage, beans, etc., and pot herbs of many kinds, all for use in the cooking school.

There were also beds in which were planted seeds of wheat, barley, and maize, besides grass and clover; and also a bed containing

many of the common weeds which grow in pastures. Flax, poppies, and tobacco also found a place. Certain plants were chosen to illustrate special characteristics, such as the contrivances for fructification, the relation of insects to flowers, and so forth. In the middle of this part of the garden were a few beds to show the commoner kinds of ornamental flowers in constant succession. This bed was full of beautiful tulips in full bloom when I visited the garden. One of the prettiest features was the collection of trees that grow in local woods—beeches, birches, oaks, pines, firs, and among them wild roses and other wild plants.

The cost of maintaining the garden is but small, because all the work done is by the children, who bring seeds and other plants as needed, and plant them under the guidance of the class teachers. Each class takes charge of certain beds. In the trees are placed boxes for the birds to nest in, and the children also feed the birds on the spacious lawn.

This garden is of a different type from the gardens in the country schools, and has a different object. Here the purpose is not so much to teach the actual cultivation of the soil, or to grow fruit, as to show the children, both girls and boys, how to tend a garden and to give them a pleasure in nature. The purpose is to give reality to the science lessons in the classroom. The old way of merely dissecting flowers in the schoolroom has given place by means of this garden to the actual study of growing plants. The insects have been watched at their work in fertilising flowers. The book learning has been connected with living things, and has gained life from the connection. Then, again, the drawing has profited, because the children, when they study a flower with a view to drawing it, can watch its habit and mode of growth, and are not so likely in conventionalising a flower for the purpose of design to violate the law of its growth. Pains are taken to keep the study of natural objects in the school in close touch with the school garden.

This school is of the advanced elementary type. There are about 500 boys and as many girls. They enter the school at six years and leave it at fourteen, after an eight years' course. The school is divided into thirty classes, namely, fifteen classes of boys and fifteen of girls. The average number in a class is about thirty-five.

There are twenty-eight teachers, of whom nineteen are fully certificated, two are provisionally certificated, three are assistants, two teach needlework, and one teaches cookery. The subjects taught besides Scripture, German, arithmetic, geometry, natural history, natural science (physics), geography and history, are drawing, singing, gymnastics (there is a fine gymnasium, also used as an assembly-room), needlework, cookery, and manual training (cardboard and woodwork). Either French or English is taught to most of the children. Opportunity is offered to the older boys and girls of learning shorthand.

The fee charged for the older scholars is about £2 a year. On leaving, all boys are obliged to attend a continuation school until they are seventeen years of age. There is no fee for the continuation school.

The director, Herr Wilsdorf, who has designed and carried out this school garden, speaks enthusiastically of its results, and frequently advocates its wider adoption on the occasions when he attends the conferences of teachers which are held periodically according to the regulations which prevail throughout Germany. At present there are comparatively few school gardens in the kingdom of Saxony, but Herr Wilsdorf is hopeful for their future extension.

At another large elementary school near Lohtau, a suburb of Dresden, where there are 2,800 boys and 1,670 girls, there is a still more elaborate school garden of this type.

General Description of Site.

The playground is rectangular, and a strip of land around three sides of it has been cultivated. The total length of the strip is about 150 yards, with a width of six yards, or about 900 square yards of ground. The soil is rather too stiff for easy cultivation, and is being gradually improved by mixing more sand. The work is carried out by the children under the guidance of three of the teachers, aided by a gardener from the public gardens.

Divisions of the Garden.

The first section forms an introduction to the study of the wild plants and trees of the neighbourhood. It is divided into meadow, marsh, heath, and hill, and is intended to illustrate "plant communities" as they arise in natural conditions. The children can learn the habit of each plant in such natural groups, how one depends for its protection upon another, and the effect of the character of the soil and the situation. The plants are not studied merely from a morphological or classificatory point of view as formerly, but in addition the life of the plant and its natural surroundings are studied in connection with each other, so that its structure is studied in life and not merely in dissection. In short, this part of the garden is a "Living primer to the great Book of Nature."

The plants are collected by the children in the course of school expeditions which are made for the purpose. Seeds are gathered in the case of annuals and biennials, while the roots of perennials are transplanted with care to their new home.

In this way the children learn the natural habitat of each plant, and the natural group of which each forms a member. Each plant is carefully labelled, both with the common name and also its scientific name.

In the school-house are hung up for inspection tables showing

the chief details of the plant's structure and growth, its time of flowering, fruiting, etc. Lessons are given on the plants during the time allotted in the time-table to Natural Science and Natural History.

(a) *Trees that grow in the woods*—
Maple, alder, lime, birch, whitethorn, ash, beech, hazel, dog-rose, etc.

Attention is called to the abundance of spring flowers in the woods, which have to finish their flowering before the trees above them are in full leaf and cast a shade over them.

(b) *Shrubs, annuals and biennials*—
Lily of the valley, wood violet, wood sorrel, anemone, lungwort, enchanter's nightshade, golden rod, etc.

A rockwork was made with a steep side and a sloping side. The earth consists of decomposed granite, etc. Here on the sloping side grew the plants of the heath, which protect themselves against evaporation in various ways (small leaf surface, woolly coat, thick leaves, vertical position of leaf, etc.). On the steep and shady side grew ferns.

(c) *Plants that grow on the slopes of hills*—
Hawkweeds, pinks, scabious, devil's bit, mullein.

(d) *Plants that grow on the open heath*—
Genista, heath and ling, bilberries, broom, etc.

(e) *Plants that grow on peat and marshy moors*—
Sundew, cottongrass, marsh mosses, bog myrtle, sedges, bulrush, flag, marsh-marigold, butterwort.

(f) *Plants that grow in or around a pool of water.*

There are three basins, the first very shallow, the second eighteen inches deep, and the third three feet deep. They are connected so that water flows through from the shallowest. The bottom is cemented. Around the edges are forget-me-nots and such plants as grow on the banks of streams. In the tanks grow (1) plants that have only their roots in water, their stem and leaves rising above it; (2) plants with stem and roots below water and floating leaves; (3) plants with stem, leaves and roots under water—water-lily, villarsia, water soldier, frogbit, flowering rush, arrowhead, peppermint, water buttercup, bladderwort, pond weed, horsetail, etc.

The ponds also formed an aquarium for the study of creatures that live in the water—water beetles, snails, freshwater shell-fish, the larvæ of dragonflies, minnows, etc.

Meadow plants—
(1) A collection of grasses. Foxtail, Timothy, etc.

Meadow flowers—
(2) Clover, cranesbill, caraway, fritillary, meadow saffron, etc.

During the collection of such flowers, notice was taken of the insects which visit them, and of various adaptations of their mode of growth to their locality.

The Orchard.

Walnuts, plums, mulberries, apples, pears, gooseberries, raspberries, strawberries.

The Flower Garden.

The garden shows the cultivated forms of certain wild plants, in order to contrast the effect of selection and cultivation. Campanulas, foxgloves, pinks, asters, roses, lobelias, gladiolus, hyacinth, crocus, lilies, etc.

The Kitchen Garden.

The vegetables are raised from seed, and by means of a frame early vegetables are grown with success.

Grown for leaves :—
- Spinach.
- Cabbages.
- Lettuce.
- Endive.
- Cress.

Grown for roots :—
- Carrot.
- Beetroot.
- Radish.

Grown for their foods and beans :—
- Peas and beans of various sorts.

Vegetables grown for their fleshy fruit :—
- Cucumber.
- Melons.
- Tomatoes.

Spices and perfumes and medicines :—
- Dill.
- Lavender.
- Parsley.
- Marjoram.
- Peppermint.
- Balm, etc.

9. Mr. Wilsdorf's Views as to the Moral and Social Advantages of School Gardens in Town Schools.

Herr Wilsdorf's opinion as to the advantages of school gardens is to the following effect :—

Mischief instead of play ; instead of a child's natural amusements (such as roaming in the lanes, and watching birds and beasts and gathering flowers), playing at being a man, smoking cigarettes, and betting on horses ; filling the immature mind with all that is gross

and common instead of leaving it receptive to the enjoyment of the open air and the kindly freshness of nature—such a series of contrasts fairly sums up what to suppress or avoid in training a child.

School life is only one of the many influences which act on the schoolboy. There are also his home, and the life which is led by his parents, the influence of his companions out of school, all that he hears in chance way from grown up people, and all that he reads for himself. Great as is the influence of the school and the teacher, it is a mistake to attribute to these alone all the success or failure of the youth as he grows up.

There is no doubt, however, that the instruction which is given in school has sometimes been too little connected with home life, and that there has even been some opposition between them, so that what has been most regarded as of value in the home has been depreciated and even despised at school, while the lessons in school have often been regarded by parents as possessing little practical value.

There is an opportunity at the present time, such as has never existed before, of knitting together more closely home and school life. This is due to the advance of modern science, and to its application to the common affairs of everyday life in the house and in industry.

An ordinary boy will take much more interest in the explanation of some fact in one of his lessons on natural science if he combines his lesson in school with some practical work in which he can use his hands.

This is equally true of his lessons in geometry and arithmetic. A teacher who is in the habit of thinking out the practical bearing of his lessons derives much benefit both for himself and his scholars.

Partly he finds himself able to omit what is unessential, partly he is able to show his scholars how to find out for themselves details which they may need to know, and partly he is able to seek and find sympathy with the parents by showing them that he wishes to impart living knowledge, and to make their sons useful at home and thoughtful in the exercise of any practical work which they may undertake.

Work in the school garden offers the teacher the opportunity of carrying out this kind of instruction.

More than this—a change is coming over the aims of the teacher of science. The acquisition of so much knowledge of system and classification as can be included in a text-book of science is really becoming to be regarded as so much "examination fodder," having no further value than the attainment of a diploma.

The first step in teaching science is to direct the child to the observation of the life, growth, and habits of living things. It is thought more important than formerly to direct the child's attention to living matter and the slow patient toil which is needed to grow plants with success, or to rear poultry, or to keep bees.

Dealing with dead matter and chemical analysis and mathematical calculation of light, heat, and electricity belong to a later stage.

In a school garden the boy becomes aware, almost imperceptibly, of the conditions of growth of a plant, of its dependence on light, air, warmth, water and soil. He learns to see the relation of the various organs of a plant to each other as a living whole, and the connection between plant and insect life. It is not the dead anatomy of the laboratory that is his first introduction to nature.

The schoolmaster seems no longer to be merely keeping school when he is at work with the boys in the garden, and his wife teaching the girls to cook and sew; he seems to be head of a working family, where, besides reading and arithmetic, the scholars learn to respect work and to perform it, to work together for a common cause, to understand the dependence of one upon another, to be helpful and to be grateful to each other. There arises among fellow labourers in all kinds of handwork a feeling of friendliness which does not easily arise over mere bookwork.

10. Institutions Providing Instruction in Gardening to Teachers in Elementary Schools.—A Visit to Proskau.

Having so far dealt with the school gardens which are connected with elementary and higher grade schools, both in town and country, I proceed to describe some of the institutions where teachers are encouraged to take short courses in the theory and practice of garden work.

On 8th May I visited Proskau. This is a large pomological institution supported by the Prussian Government for the benefit of East Prussia, corresponding to the similar institution at Geisenheim, which exists for the benefit of the western parts of the kingdom. At Geisenheim, which is in the wine-growing district, special attention is paid to the vine; while at Proskau, where the climate is unsuitable for the production of wine, more attention is devoted to fruit culture.

Proskau is about seven miles from Oppeln, on the Oder, in the midst of a wide plain. The soil of the garden is a heavy clay, and most difficult to cultivate. The villages in the neighbourhood are entirely agricultural, but the villagers are thriving and the houses look substantial. The peasants can afford to eat meat every day.

I was most kindly welcomed by Dr. Stoll, and found that my visit coincided by a happy chance with one of the conferences of the district school-inspectors, which take place three times a year at this institution, when lectures are given to the inspectors on subjects connected with school gardens, and discussions are held afterwards.

These conferences last three days, and twice a year the teachers in the village schools have permission to attend, at the Government

expense, a course on fruit culture, which lasts for three weeks in the spring and two weeks in the summer.

I visited the library, where teachers could inspect some of the best books of reference, diagrams, and apparatus for instruction, and the museum, where special collections were arranged and described to illustrate the preserving of fruits and vegetables, the ravages of insect pests, the various kinds of seeds, different kinds of timber and other matters.

There was a most ingenious contrivance for disinfecting all the stuffed birds and animals, consisting of a zinc box about four feet long, three feet wide, and two feet high. This box was provided with a lid which fitted into a wide groove, into which water could be poured, and thus seal the chamber. The stuffed animals were placed once a year in this chamber, and disinfected by this simple and effective piece of apparatus.

I also visited the section for making cider and bilberry wine, and afterwards the forcing houses and the conservatory, containing many rare and beautiful and curious flowers, and notably a cross between a rhododendron and an azalea raised in Belgium. There was also an orchid house and a palm house.

After this I joined the school inspectors, who numbered twenty-five, and attended a lecture which was given by the director, Dr. Stoll. Most of the inspectors were clergymen, and each had a large district, including some two or three hundred schools.

The lecture related to the proper method of planting young fruit trees. The much discussed questions of cutting roots and shoots were dealt with in a practical way, and led to a lively discussion. The preparation of the hole, especially in a clay soil, was the other topic, and also led to much conversation. It was remarkable to notice the keen interest which the inspectors took in the details of fruit-growing, and it was evident they were sparing no pains to make this instruction a reality in their various districts.

I then visited the village of Klagnitz, about a mile from the institution. Here a new school has been erected and provided with a garden. The school is divided into two classes, each under a separate teacher. The garden contains rather more than a rood, and is rectangular. The master has in his class fifty-five children (boys and girls), and these work for an hour weekly in the garden under the master's superintendence, while theoretical instruction, bearing on plant life, is given during the lessons on natural science. The younger children constantly use the garden for illustration of their lessons on common things. The Government contributes £5 a year to the maintenance of the garden. The cultivation included fruit trees, vegetables, and a few flowers, and all was in excellent order. The master also kept bees.

Returning from the school I visited the plantations at Proskau, in which all sorts of trees which are suitable for parks and copses and large gardens were being grown, and afterwards the extensive fruit gardens and vegetable gardens of the institute.

I then visited the home of the students and saw the well-organised domestic arrangements, kitchens, dormitories, baths, etc. I also visited the drawing schools, where some of the students were at work upon designs for public gardens in various towns.

As the Proskau institute is playing so important a part in the development of school gardens, some detailed account of it appears to be of interest.

I.

Object.

The Royal Proskau Pomological Institute exists to promote and improve gardening in all its branches. The means to this end are (*a*) various courses of instruction; (*b*) the cultivation of trees and plants on a large scale; (*c*) the institution of investigations and experiments which bear on cultivation, and some of which extend over a long period of time.

Various Courses of Instruction.

1. For students (a two-year course).
2. For guests (at least six months).
3. For teachers in training colleges and elementary schools.
4. For foresters.
5. For apprentices in the School of Forestry at Proskau.
6. For all interested in the diseases of plants and especially of fruit trees.
7. For gentlemen's gardeners.
8. For all interested in gardening and fruit-growing (landowners, etc.).

The Course of Study for Students.

In this course young gardeners receive a complete theoretical and practical instruction in all branches of garden work. The length of the course, which commences either at Easter or Michaelmas, is two years. It is open to young gardeners who have completed their seventeenth year, and reached at least the upper third class in a Gymnasium or an Upper Real School, or the second class of a Progymnasium or a Real School, and have gone through an apprenticeship of two years in practical garden work satisfactorily.

In case a candidate has passed no such examination, he will be examined on entry by the authorities of the institution, who will satisfy themselves that he is able to profit by the instruction which is being given there.

In certain cases the qualification of a two years' apprenticeship can be dispensed with at the discretion of the director of the institution.

In certain cases the course may be extended after the completion

of two years for one, or at most two, half years, for the purpose of making a special study of some particular branch.

The subjects of instruction are:—

Fruit culture (including the vine).
Planting, pruning and grafting, forcing, choice of kinds, preserving fruit, and jam-making.
Vegetable growing and forcing.
Agricultural crops.
Flowers.
Pot culture.
Timber and timber trees.
Landscape gardening.
Drawing and colouring plans for gardens.
Measuring, surveying, levelling.
Botany, anatomy, physiology, and morphology of plants.
Diseases of plants.
Geography of plants.
Microscopical exercises.
Botanical excursions.
Chemistry (organic and inorganic, especially relating to manure).
Physics (especially relating to warming and lighting and to meteorology).
Mineralogy and soil.
Zoology (especially relating to noxious insects, etc.).
Mathematics.
Book-keeping,
Bee-keeping.
Shorthand.
Law and Economy as relating to land.
Ambulance.

II.

Course for Guests.

This course is open to landowners and others. They share in the life of the place, and in most cases pursue the same studies as the student gardeners. The fee is £2 10s. a month.

III.

Course for Teachers.

This course lasts for a fortnight or three weeks in the spring, and ten or twelve days in autumn.

The principal subject is the cultivation of fruit trees. The number is limited to twenty. The Government allows travelling expenses and three shillings a day for living.

IV.

Course for District School Inspectors.

This is a conference on school gardens, with lectures on fruit

culture, and is held three times a year. It is open to any inspector in the districts of Oppeln, Breslau, and Liegnitz. A considerable number of inspectors in these districts have at one time or another availed themselves of this course.

V.

A Course for Foresters.

This is divided into a spring course of three weeks and an autumn course of a fortnight, and consists of purely practical work among the forest trees.

VI.

Course for the Study of the Diseases of Plants.

This course is held in the month of June and lasts for a week. It deals with the common diseases of plants and their remedies, and is open to all who are concerned with these troubles.

VII.

Course in the Care of Trees for Gentlemen's Gardeners, who Possess Experience.

This course is held towards the end of February and lasts for a week. It is open to others besides gardeners. It is not open to young gardeners.

VIII.

Course for all who are Interested in Gardening or Fruit Culture.

This course is intermediate between II. and VII.

Besides these courses the Institution is open at all times to any who may be interested in the subjects which are dealt with in the Institution, and who may desire to ask questions or seek advice.

Fees:—For Students (Course I.)	
For the first and second half year	£3 0 0
For the other half years	£2 5 0
Cost of lodging, food, and washing	£3 15 0
Ditto for non-Prussians	£5 0 0
Fee for Guests (Course II.)	
For the half year—	
For Germans	£2 10 0
For Foreigners	£3 15 0
Fee for Teachers (Course III.)	
Free for Prussians.	
For Foreigners	£1 10 0
There is no fee for Courses V. and VI.	
Fee for Course VII.	
Free for Prussians.	
Foreigners	£0 15 0

For Course VIII.—The fee is ten shillings a week and five shillings for laboratory expenses.

Examinations and Certificates.

Students at the end of their two years' course undergo an examination, according to the result of which, combined with the amount of industry shown in the course, a certificate of proficiency is awarded.

At the conclusion of each half year an examination is held, and a report supplied to the parents of the students.

Apparatus and other Means of Instruction.

1. Fruit garden and plantations, about 4 acres.
2. Park and arboretum, about 2½ acres.
3. Kitchen garden.
4. Beds for the cultivation of flowers and shrubs.
5. Nursery for fruit trees, about 3 acres.
6. Espaliers.
7. Forcing houses, etc.
8. Hothouse, greenhouse, frames, etc.
9. Fields for crops, wheat, etc.
10. Library (3,000 vols.)
11. Museum, (5,000 specimens).
12. Preserved fruit, jam, bottled fruits, tinned fruit, dried fruit.
13. Experimental plots, etc., for physiology and chemistry of plants.
14. Beehives.

Proskau is a town of 2,500 inhabitants, healthily situated on rising ground. Around it are pine woods, and the distant views which command parts of the chain of the Giant Mountains are particularly beautiful.

I have attempted to give some idea of the establishment at Proskau, but there is another impression which cannot so easily be expressed in words. The life which is led there is most attractive. Besides simple living and close attention to work, there is a breadth of interest which might hardly be expected in a college for such a special purpose as the cultivation of fruit. The conversation passed from cultivation of fruit trees to culture of another kind, which ranged from the consideration of German thinkers and poets and men of science to the art of the day in Germany and England, to the general trend of European politics, and that of England in particular. It would be hard to find another institution in which plain living and high thinking are more happily combined with agreeable surroundings.

11. The Influence of School Gardens in Towns upon Social Life. A visit to Mr. Cronberger's School at Frankfort-on-the-Main, and an account of the Frankfort Small Gardens Association.

It is not unreasonable to ask whether, in the case of towns where attention has been paid to gardening in connection with the schools,

any influence of this training can be traced in the social life of the people. A description of a visit to the schools at Frankfort-on-the-Main will afford some evidence that garden work at school is not without a healthy and beneficial effect upon the occupations of the scholars in their later life.

On the 15th of May I visited Herr Cronberger, a teacher in a large school in Bornheim, which is a suburb of Frankfort-on-the-Main.

For miles around the country is one huge garden, where fruit and vegetables of all sorts are cultivated with the greatest care. The view from a neighbouring eminence commanding the valley plain of the River Main and the slopes of the Taunus Hills, a mass of white blossom as far as eye could reach, was one never to be forgotten.

Herr Cronberger is the author of an invaluable and far too little known book on the arrangement of a school garden as a means of education, together with a history of the movement in the past, and an account of its present condition, both in Germany and other European countries. To this treatise I owe most of what is of value in this report.

Herr Cronberger received me with cordiality, and conducted me over a half a dozen large elementary schools in Bornheim.

Every one of these, according to regulations, is supplied with a large playground. The centre of this is free for play. Around it are planted a great variety of trees, and against the boundary are small beds of flowers, vegetables, field crops, and ornamental shrubs. The children do not, however, work in these gardens with their own hands, but use them for purposes of observation, while the teachers procure from them specimens for illustrating their lessons in elementary science. Mere reading about facts of scientific interest or listening to descriptions of them based on diagrams and blackboard drawing is considered wholly inadequate. "No teaching without the object" is the principle upon which all this kind of instruction is invariably given.

The objects supplied by the gardens are supplemented by extensive collections made by the children themselves in the course of expeditions to places of interest in the neighbourhood.

It is the aim of Herr Cronberger to make all this work as practical as possible, and to show the bearing of it on everyday life, whether in household management or in the garden and field.

In each school there was also a set of the usual meteorological instruments, so that each playground was a meteorological station. The schools are also supplied with a large amount of useful apparatus for demonstrating the common facts of modern science which are at the root of modern industry, whether in the home, the workshop, or the manufactory.

Herr Cronberger finds his plans and ideas for the spread of school gardens far less generally carried out than he could wish, but energetic people are in the habit of thinking that until all is

complete nothing is done. Some evidence of the success of his teaching in creating a love of nature and gardening appears in the recent formation, under his guidance, of an association for the encouragement of small gardens for the townsfolk of Frankfort.

At first sight these might seem much the same as our allotments, but a visit to the gardens themselves on the outskirts of Frankfort on a sunny evening conveyed a very different impression.

Herr Cronberger's wish is to inspire the rising generation with a wholesome interest in nature and the outside world, in flowers and shrubs and fruit trees, and wild birds. This, in his view, is the best way to counteract the false excitement and craving after unwholesome amusements, which are rife in large towns where wealth is abundant.

In 1899 a society was formed for establishing small gardens in Frankfort-on-the-Main. The committee guaranteed some £500, and rented on a fairly long lease some two hundred acres of good land on the hill at Bornheim, one of the suburbs. The plot is itself surrounded with fruit gardens and commands beautiful views. It is, though only a mile from the centre of Frankfort, breezy and attractive. The plot is subdivided by substantial iron-wire fencing into small garden plots of about two hundred square yards, each of which is provided with a small summer-house. Such a plot, including the summer-house, is let for 22s. a year. The gardens were very neatly kept, and no two were cultivated alike, but in none of them were flowers neglected. Two pumps supply water. There is a special plot of land where quite young children can play together, and also a portion of ground where the very poor can be supplied with land gratis. This is managed by means of an old charity which is devoted to the purpose.

In order to assist the members with their gardening, lectures are given during the winter, which are well attended, and at all times the gardener, who has a house on the spot and looks after the whole plot, is ready with advice. The subjects of the monthly lectures included :—

1. Practical advice for working a small garden. (October.)
2. How to make the most of the fruit from a small garden. (November.)
3. Window plants. (December.)
4. By what means may the cultivation of fruit in Bornheim be improved. (January.)
5. On pruning fruit trees. (February.)
6. On cultivating roses. (March.)
7. On sowing and planting out vegetables. (April.)
8. On the formation of a seed bed and sowing. (May.)
9. On growing flowers in small gardens. (June.)
10. How to supply the house with fruit from a small garden all the year round. (July.)
11. The chief points in vegetable growing. (August.)

Many of the lectures were illustrated by practical demonstrations in the gardens. The lecture on pruning was given by the manager of the Frankfort Experimental Fruit Garden, a private society of importance to the furtherance of fruit-growing in this neighbourhood, and members were after the lecture invited to visit the garden of this association, a privilege of which nearly half the members availed themselves.

Besides the enjoyment of a healthy and interesting occupation for a man and his children, for whom the summer-house is the scene of an almost nightly tea picnic, the sale of the vegetables pays the rent. In the following list of sales no notice is taken of flowers or strawberries or vegetables supplied to the family.

Sale of Vegetables.

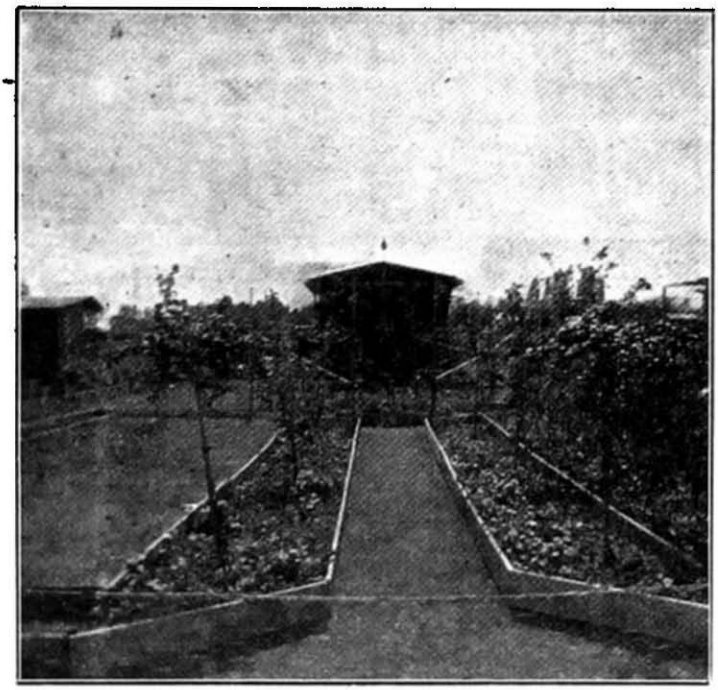
	s.	*d.*
Spinach	1	0
Lettuce	1	0
Peas	1	0
Cabbage and Beetroot	1	0
Broccoli	1	6
French beans	9	0
Savoys	1	6
Potatoes	5	0
Cucumbers	2	4
Sum	23	4

In the summer an exhibition was held and prizes were offered for the gardens which were judged to be in the best order as well as for the best plants shown.

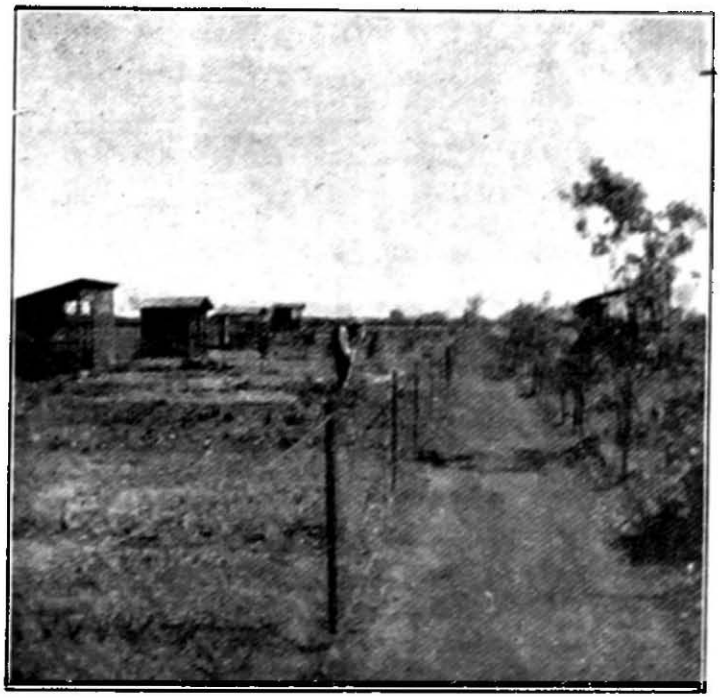
In the autumn the children in the nearest streets are invited to come to the gardens to carry away flowers which they are to preserve in pots or boxes during the winter and bring again in the following spring, the best grown being rewarded with a prize. The spring exhibition of these flowers affords great pleasure to the children. A small monthly magazine is circulated among the members and holders of plots.

It seems as if school gardens, cottage gardens, experimental gardens, and market gardens and fruit farms are gradually becoming parts of a social and industrial scheme, in which all parts profit, the children by improved education, society by an improvement in the occupations of the people after their day's work, and the interest in scientific horticulture, and the market by improved and cheaper fruit.

I visited the above-mentioned experimental fruit garden at Frankfort. It is situated on the other side of the river in Sachsenhausen, in a triangular space enclosed by railway embankments. It is partly supported by an annual contribution from the town, and is admirably arranged for promoting and improving fruit



ONE GARDEN PLOT IN THE GROUNDS OF THE FRANKFORT SMALL GARDENS ASSOCIATION.



General View of the Grounds of the Frankfort a./M. Pomological Association.

culture in the district, and is doing much to spread a knowledge of the theory and practice of fruit-growing in the neighbourhood.

12. An Account of a Visit to the Horticultural School at Geisenheim, on the Rhine.

The last institution which I visited was the Royal School of Fruit, Wine, and Horticulture at Geisenheim on the Rhine. This is one of those institutions where short courses for teachers are periodically held, and some account of its general organisation will therefore be useful.

The ordinary course of studies is two-fold; there is a lower course which lasts one year, and a more advanced course which lasts two years.

(1) The one-year course is intended for young gardeners who wish to improve themselves, especially by acquiring such theoretical instruction as helps the practical gardener. This course is also open to students who have not been gardeners, but wish to acquire some practical and theoretical acquaintance with fruit and vine-growing. The qualifications necessary for admission to this course are:—

1. To have passed through an elementary school with success.
2. To have been for two years apprenticed in gardening.

The technical studies are dealt with in as practical a way as possible. The science is taught so as to be as easy to grasp by practical gardeners as it can be made.

The year's course is divided into two groups—(*a*) practical (technical) work; (*b*) theoretical.

The practical work includes (*a*):—

1. Fruit trees, planting, tending, ; espaliers; sorts; jams and preserves; cider, etc.
2. The vine.
3. Gardening; landscape gardening; hot beds; hot-houses and greenhouses; culture of chief ornamental flowers; timber; shrubs; forcing fruit; vegetables; designing, and drawing and colouring plans for garden beds.
4. Surveying and levelling.

(*b*) Theoretical work:—

1. Botany; simple studies, with expeditions and practice in determining the names of plants.
2. Physics; structure and use of the chief instruments employed in horticulture.
3. Soils; draining; irrigating.
4. Manures.
5. Insect pests; zoological excursions.

6. Moulds and funguses, etc., which attack plants.
7. Arithmetic, especially mensuration.
8. German—
   (*a*) Writing.
   (*b*) Exercises in describing and lecturing and demonstration.
9. Subsidiary studies: Book-keeping; commercial correspondence; shorthand; painting flowers and fruit; singing; ambulance.

(2) The course for the two-year students is intended to prepare those who wish to become teachers in horticultural schools or peripatetic teachers, or to obtain superior positions in the gardening industry.

The qualification for entering upon this course is to have passed the upper third class of a Gymnasium, or an upper Real School.

During their first year these students pursue much the same studies as the others, but in addition they learn more in the theoretical part of their work, *e.g.*:—

1. Botany; morphology; system; the cell; the chief organs of plants; botanical excursions.
2. Inorganic chemistry and mineralogy, especially as bearing on the food of plants.
3. Physics; mechanics; special attention to electricity.

In their last year these students pay more attention to scientific work than to practical work, but the practical work is continued throughout the course, and also the exercises in giving lectures and demonstrations.

The following is the plan of study:—

Practical.

(1) Fruit. The chief sorts.
Estimates for laying out large and small fruit farms.
Income and expenditure. Markets.
(2) The vine—extended study.
(3) Gardening. Estimate of cost of laying out gardens according to plans of own design.
Application of design to all kinds of pleasure-grounds.
(4) Measuring, levelling, use of compass and theodolite.

Theoretical.

(1) Botany. Physiology of plants. Anatomy. Growth. Nourishment, reproduction, fermentation, systematic botany.
Excursions for studying flowers.
(2) Chemistry. Organic chemistry. Manure. Soils. Chemistry and technology of wine, vinegar, and brandy.

(3) Insects and plants that injure culture. Zoological excursions Microscopical studies.
(4) Meteorology.
(5) Drainage. Theory of preparation of soil.
(6) Mathematics, geometry, and arithmetic as before.
(7) Practice in lecturing.

Subsidiary Studies.

Painting flowers and fruit. Rules for construction of stone, cement, and iron houses for gardens.
Garden architecture.
Elements of political economy. Elements of law which affect gardeners. Singing. Ambulance.
Excursions to gardens, vineyards, farms, etc.

Examinations.

(*a*) The examination at the end of the one-year course consists of an oral examination, which lasts one day, and a written examination, which lasts three days.
(*b*) The examination at the end of the two-years' course is also oral (one day) and written (three days).

After three years' work in practical business those who have passed this examination "well" may present themselves for another examination, which is both oral and written. This is a Government examination, and shows the candidates' success in applying science to industry. Success in it qualifies the candidate for a post as teacher of fruit, wine, and flower culture, or as a head gardener.

The fee for teaching is, for the first year, £6; for the second year, £9.

The cost of board is, for Prussians, £17 10s.; for others, £25.

Short Courses.

(1) Fruit culture and gardening.

This course is intended for clergymen, teachers, and owners of gardens or land. It takes place at the end of March, and lasts three and a half weeks.

The subjects dealt with are tending fruit trees; diseases, espaliers; training and manuring fruit trees; insect pests, vegetable and flower culture.

The morning from nine to twelve is devoted to lectures, and in the afternoon practical work is done in the garden. The latter includes espaliers, pruning, grafting.

Th course is free to Prussian teachers. Non-teachers, if Prussian, pay £1, and if not, £1 10s.

This course is supplemented by another in the autumn, lasting

six days, when the following points are dealt with both through lectures and practical work. Budding, pruning, treatment of dwarf trees, and preserving fruit, jams, etc.

There are also other short courses for (1) those who attend to trees in streets and along the highways, held in March and lasting three and a half weeks. (2) A course for owners of vineyards, in January, three weeks. (3) A course in preserving fruit, making jam, packing fruit, etc., for men and women, in September, one week. (4) Course on the insect pest that attacks the vine, in February, three days; and other courses.

Lastly, those who are properly qualified are permitted to go through a course in the laboratories to suit their requirements, paying 10s. to £1 extra for reagents, etc.

Teachers who attend the course receive from the Government a sum of money, viz., £5, for the first part of the course, and £2 for the second part, which pays them for their maintenance and travelling expenses, or nearly pays.

The director is of opinion that these courses certainly have done good. He thinks it would be better if the teachers were in the habit of attending for more than once. He also thinks that in some cases the school gardens attempt too much instead of aiming at simplicity.

According to his estimate, the Prussian elementary schools in rural districts may be divided into three classes in respect of garden work. One-third teach gardening successfully; one-third only moderately; and one-third insufficiently. Much depends upon local effort and encouragement.

To understand the full value of the efforts which are being made to introduce gardening or fruit culture into German schools, it i necessary to bear in mind that the movement is part of the national system for promoting agriculture and horticulture.

How important this system is will best be seen from a brief summary of the work which is being done in all kinds of educational establishments, from the highest to the lowest.

The Minister of Agriculture, through local chambers of agriculture and local agricultural associations and clubs, is in close touch with all who are concerned with land and its produce. Chairs and professorships are established at the universities, and there the highest learning is devoted to research. The results of it are spread through secondary and intermediate schools, and through these to continuation and elementary schools.

The success of the lowest portion of this organisation depends chiefly upon individual energy of inspectors and teachers in various localities, and, although it is not uniform, there is no question that a good deal of excellent work is being done where the locality has the good fortune to be supplied with energetic promoters of agricultural and horticultural improvement.

13. An Outline of the National Provision for Instruction in Agriculture and Horticulture and Allied Industries in Germany.

The provision for instruction in agriculture, horticulture, and the allied industries in Germany may be roughly classified under three heads—namely higher, intermediate, and elementary. The higher instruction is provided at certain universities or university colleges, sometimes called technical high schools. The intermediate instruction is given in schools of a secondary character, where the course of instruction corresponds to a real school. The elementary instruction is provided for by summer and winter courses, with or without practical work, and in the upper classes of elementary schools and continuation schools. The teaching in the lower grades depends upon the higher in each case, and in order to understand what is being attempted in the lowest stage, the elementary school, it is necessary to review the work of the higher grades.

Prussia.

Instruction in agriculture of the advanced or university type is given in more than one university. The students are matriculated into the university, and are members of it in the faculty of philosophy. As an example of the opportunities which are offered to students of agriculture reference may be made to the university of Königsberg.

1. Buildings open to the students.

(*a*) The Agricultural Institute, with library, reading-room, collections, laboratory for dairy work and zoological laboratory, experimental dairy and cattle stalls.

(*b*) The physiological laboratory (agricultural) and the botanical garden. Experimental plots for demonstration and research.

(*c*) The veterinary department, in which 2,000 animals are treated annually.

(*d*) Laboratory for agricultural industry. This is in close touch with the institute of Kleinhof, with its sugar factory, distillery, station for breeding horses, sheep, cattle, and swine, experimental dairy, electric light and power, field railways, etc.

2. Lectures.

General introduction to the study of agriculture, stock raising, dairy farm, laboratory work in connection with milk, zoology, botany, meadow land, improvement of land, exercises in the physiological laboratory, surveying and levelling, diseases of cows, horses and sheep. Bacteriology, diseases of plants, insects, noxious and beneficial. Book-keeping.

The chemistry of the food of animals. The food of plants,

manures, production of beer and spirits, theoretical and experimental chemistry. Experimental physics, comparative anatomy of animals and zoology, with laboratory work. Fish culture. Botany and physiology of plants, with laboratory work. Meteorology and astronomy. Geology and mineralogy, with excursions. Pharmaceutical chemistry.

Political Economy and Law.

Similar opportunities are offered at the universities of Breslau, Halle, Kiel, Göttingen, and Bonn.

It is perhaps needless to say that the university of Berlin enjoys the highest reputation of all the German universities. The capital of the empire has naturally attracted to itself the highest talent, and has the most splendid equipment for instruction in agriculture and allied subjects.

At all these institutions a Government certificate is provided for students who pass (*a*) a three-years' course, qualifying them to be teachers in agricultural schools, and (*b*) a two-years' course, qualifying them to be land agents.

Intermediate Instruction in Agriculture.

Schools of this kind are subsidised by the Government, but are not established by the State. They are under the supervision of the Minister of Agriculture along with the Minister of Education. The lower classes of these schools follow the course of instruction in a real school. French is obligatory. In some cases Latin is taught.

As an example of the organisation of these schools reference may be made to that of Heiligenbeil, near Königsberg, founded in 1879.

There are 115 scholars. There are eight teachers and three assistants. The annual fee is £5 in the lower classes, and £6 in the upper classes.

The subjects taught are:—German and French. Latin is voluntary. Geography and History. Physics and Chemistry. Mathematics. Drawing. Singing. Drill.

In Prussia there are sixteen similar institutions distributed over the various provinces.

Elementary Instruction in Agriculture and Horticulture.

Instruction of an elementary character in agriculture and horticulture is of a very varied description. The main object is to spread among people who are engaged in agricultural and horticultural pursuits something of the learning and practice which is

taught in places of higher education. The instruction is provided either by local agricultural societies or private enterprise, but is subsidised by grants from provincial public funds.

As an example of one of these schools, reference may be made to the farm school at Bremervörde, in the Province of Hanover, opened in 1875. The course lasts for a year and a half, and the fee is £4 10s. a year. There are five teachers. The school is provided with a botanical garden and a fruit garden. The chemical laboratory offers to students the opportunity of making simple experiments for themselves. There is also a seed-testing department. The school is intended for those who have passed through an elementary school with success.

Of similar schools there are in Prussia, distributed over the various provinces, about 130. Besides these schools arrangements are made in various localities for peripatetic instructors in dairying, gardening, horseshoeing, beekeeping, and the like. There are also schools of housekeeping for girls.

There are also continuation schools for studying agriculture or horticulture amounting to about 1,100. Almost every village has its agricultural club or association. There are in Prussia some sixteen or seventeen hundred of these minor associations which are in touch with the Provincial Chambers of Agriculture and the Minister of Agriculture. Since 1898 the establishment of a Chamber of Agriculture has been compulsorily established by law in every province.

Bavaria.

The higher instruction in agriculture and horticulture is provided for at Munich. Special attention is paid to the science of brewing, for which Bavaria is famous.

There are also in various parts of the kingdom numerous other schools providing intermediate and elementary instruction in agriculture and horticulture, including about three hundred continuation schools

Saxony.

In the kingdom of Saxony higher education in agriculture and horticulture is supplied at the university of Leipsiz, and there is also the famous school of forestry at Tharandt, near Dresden. The country is also supplied with a number of intermediate agri cultural schools and also winter schools and continuation schools with short courses.

Würtemberg.

In Würtemberg there is the famous agricultural college of

Hohenheim, and some twenty-six schools of the intermediate and more elementary character.

Other Parts of the German Empire.

In other parts of Germany the universities of Jena and Giessen offer opportunities for advanced study in agriculture and horticulture, while in less advanced work students can pursue their studies in some hundred and twenty schools of various types. One of the most important of the higher intermediate schools is that of Marienberg, at Helmstedt, in the Duchy of Brunswick. In Brunswick there is a special school for the study of the sugar industry. As in Prussia, so in the other States, local agricultural societies exist in many villages, by whose means instruction in agriculture and horticulture is provided and maintained in some sixteen hundred and twenty schools of various descriptions.

T. G. Rooper.

September, 1901.

IMPRESSIONS OF SOME ASPECTS OF THE WORK IN PRIMARY AND OTHER SCHOOLS IN RHINELAND, ETC.

The word "Impressions" has been deliberately chosen by us as the most fitting title under which to summarise our experiences in the schools visited.*

We were there long enough for our impressions to be vivid and definite, but not long enough for them to develop into absolute convictions.

We give here not what we may have known from a book-study of the German system of education, but the actual mental photograph we brought back with us after a month's survey.

It may be that further and more critical investigation would have modified our opinions in many directions. Be that as it may, this is the mental picture we formed, and we claim nothing more for it than that; and since we are merely impressionists we feel ourselves entitled to the privileges of such shallow philosophers. We may occasionally express an opinion which has little of apparent fact to support it, we may sometimes appear to generalise on insufficient data—our prejudices even may appear—but all these are our privileges.

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* We were abroad in July and August, 1899, for practically a month. Roughly a week was spent in visiting rural schools around Düsseldorf, another week was spent in the primary and secondary schools of Cologne, and about another week in the Kindergarten, Primary, Mittel, and Secondary schools of Frankfort. The rest of the time was occupied in travelling. No time was lost owing to school holidays, as we were able, through previous intimation, so to arrange our work that the schools in the Rhine province were just about to close for the summer holidays at the time of our visit, and those of Frankfort had just recommenced after their vacation.

The following list shows the number of schools visited, the number in which we heard instruction given, and the number of lessons heard :—

	Schools.	Lessons.
1 Kindergarten	1	4
9 Primary schools	6	36
2 Mittelschulen (girls)	2	8
1 Höhere Mädchenschule	1	6
1 Realschule	1	3
2 Oberrealschulen	1	1
1 Commercial school	1	4
2 Realgymnasien	1	8
2 Gymnasien.		
1 Trade school.		

In schools where we heard no actual lessons, the head or assistant teachers showed us over the buildings in the absence of the classes, gave us a good deal of information as to the working and methods of the school, and showed us specimens of work done.

We may state as one of our general impressions the permanent enthusiasm for education which we noticed amongst all classes, from the ratepayer to the highest official; another impression was the conscientious respect for duty, that deliberate giving up of all his best energies to the charge entrusted to him, characteristic of the teacher, primary and secondary, urban and rural—particularly the last; not confined, however, let it be said, to German rural teachers, but found flourishing equally well at home. It was Guizot, who, with all a Frenchman's eloquence, once said: "However, sir, as I well know, the foresight of the law and the resources at the disposal of public authority will never succeed in rendering the humble profession of a communal teacher as attractive as it is useful."

"Society could not reward him who devotes himself to this service for all that he does for it."

"There is no fortune to gain; there is scarcely any reputation to acquire in the difficult duties which he performs. Destined to see his life spent in a monotonous occupation, sometimes even to encounter about him the injustice and the ingratitude of ignorance, he would often grow disheartened, and would perhaps succumb, did he not draw his strength and his courage from other sources than from the prospect of an interest immediate and purely personal. It is necessary that a profound sense of the moral importance of his work sustain and animate him, and that the austere pleasure of having served men and secretly contributed to the public good become the noble reward which his conscience alone can give. It is his glory to aim at nothing beyond his obscure and laborious condition, to spend himself in sacrifices scarcely counted by those who profit by them, and in a word to work for men and to look for his reward only from God."

We were interested also in noticing the evidences of solidarity amongst teachers and officials of all grades.

Class distinctions, though sharp, as in many parts of Germany, did not appear to interfere with that professional co-operation and sense of unity so essential to the successful working of a national system of education, and even these class distinctions were sometimes seen to disappear in the social amenities of "out-of-office" hours.

It has been said that the German teacher is "poor but proud." Proud, perhaps, but we hardly think that to-day he would be considered poor. We visited the homes of primary teachers, rural and urban, and our impression is that, on the whole, he is quite as well off as his British *confrère*.

A head master of a mixed elementary school of 400 children told us that his income, including his house, was £160 per annum, a salary by no means contemptible in Germany, where money is worth more than with us. In two years' time, he told us, he would retire with a pension equal to two-thirds of his salary. His house and the houses of all the teachers that we saw were comfortably, not to say luxuriously, furnished, and their hospitality afforded full evidence of comfort and ease.

Tables of comparative salaries are often misleading, for other important factors must be considered before a just comparison between salaries of English and German teachers can be made.

We were impressed also at what appeared to us the very slight disparity between the social position and worldly comforts of the town and rural primary teachers; indeed, it would not be too much to say that on the whole, the German rural teacher gets the better of the comparison.

This indeed is the opinion of some of the rural teachers themselves, as one of them said to us, "Why should I wish to remove to a town school? My salary would not be appreciably greater, and here I enjoy cheap living and unlimited fresh air."

The reason of this is, we assume, due to the fact that all are civil servants, and that the educational unit is not the school but the class. The head teacher [Hauptlehrer] of a primary school told us that he himself teaches 23 hours per week, whilst the other teachers taught from 30 to 32 hours weekly.

There is, it is true, a religious difficulty, but it is generally met by the community providing a separate school for each different sect, and thus a small village may have two small schools, one a Catholic and the other a Protestant. This is the rule, but in some towns visited, for example Crefeld and Cologne, we found a novel and, to us, surprising method of solving the difficulty. Under one roof and in the same block, with separate teachers and text-books, were two complete and independent schools, one a seven-class Protestant school, and the other a fourteen-class Catholic school, living in peace and concord with one another and using the same playground and offices. It is the hope of many of the teachers that ere long one set of text books and one staff of teachers will suffice for the two schools together.

Let us state further, that, generally speaking, fortified as we were by Royal "Erlaubnis," our visits to the elementary schools were visits without notice. We cycled out to the school, much to the teacher's surprise, with his somewhat austere views of officialism, interfered as little as possible with the ordinary work of the school, and by observation of the working of the school under normal conditions were able to form, let us hope, a fairly accurate impression of what the average rural school in Rhineland is like.

The town schools, particularly the secondary schools, were generally visited with notice, and we were sometimes accompanied by the inspector, who most kindly placed himself at our disposal whilst there. To Dr. Lüngen, of Frankfort, we wish to express our great indebtedness.

We will endeavour to systematise our impressions, and will begin with the school buildings in Germany.

We never saw a poor school building during ou journeys. That is a wide statement to make, but it is literally true.

We covered in our peregrinations much of the Rhine province of Prussia, and portions of Hesse-Nassau, Baden, and Darmstadt.

Of course, we are aware from the experiences of other travellers that it is not true to say there are no poor school buildings in Germany. We merely affirm that we saw none. On the contrary, all the elementary schools we saw were well built and in thorough repair, from the small country school with its twenty scholars up to the palatial schools of Cologne and Frankfort costing, we were told, from £20,000 to £25,000.

What shall we say of the secondary school buildings? That they are worthy of the great work for which they were designed is surely sufficient praise.

Figures, however, appeal to some minds; so we give here the cost of erecting some of these German schools.

Even the largest "block" of new school buildings in Germany, we believe, never provides accommodation for more than 1,600 children in the primary and 600 in the secondary schools, and the numbers enrolled would be about 1,200 and 400 respectively.

The new commercial school of Cologne, which will have accommodation for 600 boys, will cost when completed £50,000. The Goethe Gymnasium at Frankfort cost even more.

This school is not quite full, but taking the present number of scholars the cost per head works out at over £100.

It should be pointed out that very little of this expenditure goes in excavation, which swallows up so large a proportion of the cost of erection of schools in England, and still more so in Wales.

One of the Cologne elementary schools with accommodation for 1,600 children cost, we were told, £25,000, exclusive of the site. A Frankfort Mittelschule for Girls cost the municipality £20,000, and at present has 400 scholars. This is considered to be the finest school building of its kind in Germany. An elementary school we saw in Frankfort cost £23,000 and has 900 children in 18 classes, with 22 teachers. This school is fitted with shower baths for washing the children weekly. One secondary school alone costs the municipality of Cologne £8,000 per annum, and the director told us that he was stinted in no way. "Whatever I want I may have. I spend £60 yearly on additions to our natural history collection alone." So much for the actual cost. Let us say that there was evidence everywhere of a keen desire on the part of municipalities to spend freely and even lavishly on education. Education is a matter of education; the German authorities are dealing with highly-educated ratepayers: they are in fact reaping the fruit of a century of education. The German parent would as soon stint the mental food of his child as he would the daily bread.

We were naturally inquisitive as to the source of the large sums annually spent on education by the municipalities in Germany. We cannot go into the matter here, but two statements given us throw an interesting light on the question. At Aix la Chapelle, we were told, some years ago an insurance

society was founded, and one of the articles of association was that any sum annually earned over and above a certain percentage was to be devoted to charitable and educational purposes. The society has succeeded beyond hope—it has an enormous annual surplus, which it has devoted to building and equipping one of the finest commercial schools in Germany. The other statement was this. The city of —— is rapidly growing; it has long outgrown its fortifications, consequently the municipality negotiated and ultimately bought the ground covered by these fortifications. The Imperial Government with these funds built modern fortifications much further out. The municipality on the land thus acquired laid out fine suburbs, and ensured a good class of residents thereon by erecting magnificent primary and secondary schools there.

The German schools, both primary and secondary, are built on the class-room and corridor plan. They have no Central Hall, but the Turn Halle (Gymnasium) fulfils practically most of the functions of our Central Hall; but, of course, it cannot act as a "lung" to the school.

More might perhaps be done in utilising our Central Halls for gymnastic purposes. Out of school hours, at any rate, there can be no very grave objection, we think, to this, providing, of course, such a use does not interfere with their main function.

The Turn Halle is often used for collective singing, and is the only place in the Volksschule where the whole school can meet together and realise its corporate character.

The rural elementary schools we saw were generally built of red brick, and in two stories. In small country schools the upper story is the master's house. This is one of the rural teacher's grievances. He says that the noise from below is often very perceptible above.

In a few instances we found the master's house at the end of the school building, much to the satisfaction of the occupants. In the town elementary schools, particularly the newer ones, the head master's house is a very fine building indeed, and stands quite away from, though in the same grounds as, the school itself, and is generally built of similar material and is of similar architecture to the school. Curiously enough, the school janitor often lives under the same roof as the head master, having a few rooms devoted to his use. The same generally holds true of the secondary schoolmasters' houses. Often the finest structure in a fashionable suburban street is the schoolmaster's house.

But to return to the elementary country school. The ventilation is not generally so satisfactory as in schools at home; for example, one rarely sees an extractor or any arrangement for a constant in-draught. On the other hand, the windows are of the casement kind and open completely, so that when the weather is favourable (as during our travels) the windows are kept wide open, and the ventilation is quite satisfactory; but when the windows are closed the ventilation must be very imperfect. In the newer schools, particularly in the large urban elementary

and secondary schools, the ventilation is admirable, and is worked on what seemed to be the "Plenum" system. The "ventilating man" (who often does nothing else, and sleeps in the school in a room specially fitted up for him) is able by a hole in the wall to read the temperature of the thermometer in the class-room, and turn on a current of hot or cold air as may seem desirable. The thermometer is a piece of furniture that is never missing in a German class-room, whether town or country—primary or secondary—and more than that, it is not an ornament merely, but is as carefully watched as the school clock. The playground of the German country school is rarely divided off for the sexes; as a head master said to us, "These children play together at home and in the streets, why seek to separate them here?" The playground is usually covered with a loose gravel and is invariably planted with trees, affording a most welcome shade during these hot summer days. These trees are often of different botanical kinds, and have their uses in the object lessons.

Let us now re-enter the main building, and as we do so we shall notice how carefully the children wipe their feet on the gratings and mats placed at each door. We notice how clean the premises are, and on inquiry are surprised to find that they are swept and washed not much oftener than in England. There is no waste-paper to be seen about, for in each room we notice a waste paper basket, the fit and proper receptacle for all such chips of the educational machine. There is a habit of orderliness and cleanliness in all things that is very pleasant to the eye; one notices so few or practically no dirty hands or faces—even the threadbare garments of the poorer little ones are clean and well-darned; and yet these schools have no lavatories—no soap nor towel—nor even the inevitable basin on the tripod stand—none of these things so essential to the efficiency of other schools can we find. Nothing, indeed, but the ubiquitous school pump in the centre of the playground, the main function of which, we are given to understand, is to afford the necessary liquid refreshment to these thirsty German children.

We observe the name of the teacher on the class-room door. *One teacher to one room* is the invariable rule here. Consequently we never hear a German teacher shout.

In fact, he or she speaks so low, but, withal, so clearly, that throat diseases, so rife in other lands, must be here unknown.

He does not talk loudly, nor does he talk much. On the contrary, his pupils are made to speak loudly, and to speak much. So important is this answering loudly held to be that it is often very much exaggerated, and it becomes painful to listen to the unnatural strain which the pupils throw upon their undeveloped vocal organs

The German teacher guides more than tells; but we must leave him for the present.

The walls of the class-rooms are very bare. Busts or pictures of the three Emperors are the only embellishments.

A map or diagram of the school district, together with, in Catholic schools, a few simple and often crudely coloured religious pictures, are the only other ornaments of the rooms.

The maps are fixed on rollers above the blackboard and facing the class, and have an overhanging mantel to protect them from the dust. When required they are rolled down much as window blinds are.

The walls are generally coloured and always clean—sometimes we found the walls papered, and in the Kindergarten the patterns are pleasant and sometimes consist of figures of children playing or otherwise amusing themselves. French grey or light green are very general colours for the walls The corridors are severely bare, and the sole relief is the series of hat-pegs, cloak-rooms being a luxury rarely seen in German elementary schools; indeed hat-pegs are often seen in the class-rooms.

The furniture of the class-room consists of the teacher's and children's desks. The teacher's desk placed on a raised platform is of a type often seen in English schools, except that sometimes we notice that the drawers—so private and so full of mystery to the English scholar—are unlocked and open on the side towards the class, so that, as a teacher told us, the children may know the whole secret thereof!

The children's desks in these rural schools rarely vary, and are long, heavy desks, very substantially built (for let it be said they have only one function in life, and that an educational one), with receptacles underneath to contain the children's books, slates, &c. These German children have to buy their own material, and so, for example, the same Reader suffices for the greater part of their school life. These desks are rarely of the same size, even in the same class-room, each child being given, as far as possible, a desk suitable to his physical stature. In some of the newer town schools we were shown apparatus for periodically measuring and weighing the children. But to return to these substantial desks, a very ingenious contrivance was pointed out to us, by which a child may stand with ease in the gangway between seat and desk, and yet, when necessary, this horizontal distance or gangway is done away with, so that in the writing lesson, for example, a child may sit in a natural position without any stooping whatsoever. In the centre of each desk a small button may be pressed, and by so doing the whole of the top of the desk slides down some inches in grooves, until, in fact, the horizontal distance between seat and desk disappears, and at the same time there is revealed at the top of the desk a receptacle for preserving the ink, pens, &c., free from dust. This may not be new, but it is certainly ingenious.

The desks are often 9, 10, and sometimes even 11 rows deep, for the German elementary teacher has sometimes very large classes to deal with. Classes from 60 to 70 children are by no means uncommon, and even in Frankfort, which rightly, we believe, prides itself on being the Mecca of German education, the size of classes in the elementary schools has been fixed at 60, and those of the secondary schools at 40 pupils. In

a little country school we found one teacher in charge of 90 children between the ages of 6 and 14, divided into three sections. Is it to be wondered at that that teacher had a grievance and that he hid it not?

The blackboards are of many kinds, but there is one kind one never sees, and that is the continuous blackboard of the American school. There is the normal kind—a piece of board on a tripod; then we see the double board balanced and working on cords; also the board on casters so common at home; the board fixed in the wall; and lastly, but very commonly, the small blackboard fixed on the wall, and with two or more hinged leaves or flaps. Attached by another hinge we saw in one school an ingenious arrangement invented by the teacher himself for teaching notation up to millions; of this he was naturally very proud. It was a sort of pigeon-hole arrangement in which blocks of wood with numbers printed on them could be inserted. A contrivance very similar to this is often seen at home. In the secondary schools the blackboards are very well made, but generally smaller than ours, and contain an arrangement by which maps and other illustrations can be swung up at any required height.

The reading books are not in so great a variety as we are accustomed to. Each book must be approved by the Government Inspector or provincial Board before being introduced, and there is generally one for all Catholic schools and another for all Protestant schools in the district. These are often drawn up by the officials themselves, and are on sound educational lines. The usual German Reader is a well-bound book of some 500 pages of reading matter of the very finest character in the language. The illustrations are few or none, but the matter is above criticism. This book is begun by a child as soon as it has learned to read, and remains with him as his sole Reader until he is fourteen. It is graduated to suit his growing years. He learns the poems in it. His history and geography lessons are closely connected with the material in it and amplified therein. In short, the Reading Book is the point of concentration of practically all the instruction he receives.

The younger children, from 6 to 8, begin with a small, carefully graduated Reader. The first six months' reading from this book is in "script" character, and covers about twenty pages. Only gradually is the child introduced to the printed symbols. Pictures often supply the place of missing words in this Reader. The reading and writing lessons are intimately connected in these early days of a child's school-life. Here it should be mentioned how difficult is the work of a German teacher in teaching reading and writing, owing to their duplication of types—German and Roman; in fact, a German child has practically to learn eight alphabets; and yet we British are often reproached by the Germans for our non-adoption of the metric system.

In arithmetic it must be confessed there is much to admire. First of all the German teacher realises how unwise it is to bother the little ones with abstract quantities and tables. In all classes up to those of nine-year-old children one piece of apparatus is invariably the ball frame, and not such as grace some schools elsewhere, but huge frames five feet high, with balls as large as a fair-sized apple. There was no straining of eyesight here nor of memory either. We never heard "tables" going in a single school we visited. A teacher said, "We build up the tables for the lower numbers on the ball frame; as for the larger numbers, they learn those by oral practice later on." The text-books in arithmetic are generally drawn up by inspectors, and those for beginners are confined to numbers up to 100. They are very carefully graduated.

Here are some examples taken from different pages of such a book:—

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/////  =  ////  +
/////  =     /  +
::· − :·  =
::· − ::  =
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4 tens + 1 unit = 41 units
42 units = 4 tens + 2 units.

If a workman earns in one week 9 marks, in how many weeks will he earn 36, 54, 72, 81, 45, 63, and 18 marks?

&c.

In the more advanced text-book the pupil covers much the same ground as an English pupil would; but some geometry is also taken.

We saw no finger nor "unit" counting by any device in these schools.

Again, we were impressed by the very large amount of oral work in arithmetic, and also by the "passive" part the teacher often takes in the teaching. He calls upon a boy, who comes up to the blackboard to solve the problem set; each step, with the reason for it, is given, and the remainder of the class watches and criticises; everyone is interested, and the teacher is simply the guide or sometimes the referee—never a "teller of tales."

Practically no work in arithmetic is done in books; very occasionally we came across cases where problems had been worked first on slates, then copied into books, but these were very rare indeed.

Incidentally, we may mention here that slates are much more largely used than we had anticipated, even perhaps more so than at home. In a large town school the head master told us that his first class did all their work in books, and he hoped gradually to make it general. England went up visibly in his estimation when we informed him that paper and lead pencil had practically superseded slates in certain schools at home. All German slates have little sponges in a more or less unsanitary condition attached thereto by string, but the moisture comes from a perennial and natural, but still unsanitary source.

We shall now give a brief account of what impressed us in the building and apparatus of the town schools, both primary and secondary, for the difference between these is very slight indeed. The playground here again is always planted with trees, generally of different kinds, and in it also are often contained school gardens in which the school janitor cultivates various kinds of plants, such as flax, cumin, &c., which, it need hardly be said, have a highly educative value.

German janitors deserve a word of praise. Their industry, skill, and all-round capability are exceptional and commendable. We were shown some very beautiful natural history specimens in a Cologne secondary school which had been prepared by the janitor. The school gardens also showed how skilful these men were.

The most conspicuous object in the playground here again was the school pump with drinking cups attached. Unlike the country schools, however, no gymnastic apparatus is found in the playground. We should have mentioned that for the country schools the playground is invariably also the gymnasium, and contains a few simple apparatus such as parallel and horizontal bars.

These town playgrounds are generally covered with gravel, and are often divided up into plots, one plot for each class, and woe be to the pupil found outside his plot—he becomes at once an Uitlander.

The offices are sometimes in separate outbuildings, but in the most modern schools they are practically a part of the school building. They are flushed automatically, and seem to be in a perfect sanitary condition. Each office is assigned to its own class, and boys of a particular class in the school may only avail themselves of the assigned office.

These modern German schools are built often of red and white sandstone with granite steps and a very noble façade. They are generally four stories high, with four class-rooms on each story, *i.e.*, 16 class-rooms in all. These class-rooms are now invariably built facing the *North*. Running the full length of the building and beautifully tiled is the corridor. The floor of the class-room is of wooden blocks. On the south side of the building are the—what one may term—"occasional rooms," such as the room for Drawing, the Conference Room, the Head Teacher's Room, a room for Assistant Teachers, another for Women Teachers (in the girls' schools), the School Museums, Libraries, Laboratories, Chart-rooms, the Aula or Public Room, and so on.

Here and there along the corridor are placed drinking foun tains with cups; whilst in large recesses cloak-room stands are placed both for garments and umbrellas.

There is no lavatory, but in the new primary schools the basement is taken up by an undressing room and a huge bath-room containing half-a-dozen large shower baths, in each of which six youngsters stand and mutually avail themselves of the shower to get rid of the weekly accumulation of dirt. This is a necessity that is not felt, and so is not provided for, in the secondary schools. Under this term "secondary" let us say that here we

include Girls' Mittelschulen, which are really more like our Higher Grade schools than anything else.

A school at Cologne has its corridors decorated with fine frescoes and charts representing the growth of the German Empire from the earliest times up to the present. In most schools the corridors are decorated with busts of great Germans, such as Herder, Goethe, Schiller, etc., or by beautiful pictures of classical or historical scenes.

It is gratifying to a British visitor to see on how high a pedestal Shakespeare is placed in these German schools. Our national poet is as familiar, if not more so, to the German than to the English schoolboy. In conversation with our landlady, one of us remarked that he had been to the birthplace of Shakespeare in England. Lifting her hands in surprise, she exclaimed, "Ach, haben Sie Shakspeare auch in England?"

In the best of these schools the electric light is used, but in the generality of them gas is still the illuminant, and the primitive character of these gas-fittings is apt to strike one as incongruous and even ludicrous amid so much evidence of progress and liberality.

Just a word as to the entrance hall, though it is difficult to describe one, such as that of the Goethe Gymnasium, without using superlatives; and our regret is that we are unable to reproduce in this paper a photograph which we have of it. The rounded arches, fine capitals, massive pillars, coloured windows, and beautifully tiled floor, leading on to the marble staircase, combine to produce a very striking effect.

But let us inspect a little more closely one of these secondary school buildings.

The first room likely to attract attention is the Aula, or Public room, where the whole school assembles for prayers; this is a room that can accommodate generally four to five hundred boys. The younger ones do not attend the aula. The decoration is invariably of a highly ornate yet chaste character—the panels are either filled with frescoes or are awaiting an old boy and benefactor to provide them, and if not quickly supplied then the municipality or Government will complete them. Beautiful marble tablets are sometimes fixed on the wall bearing a list of names of benefactors, or of boys who died for the fatherland in 1870-71, or perhaps of boys who have *greatly* distinguished themselves in other ways.

All the care of the masters, all the love of the boys, is centred in the "aula." It is a glad day to the youngster when first he attends it. It is his ambition on the battlefield of war or life to carve his name in the marbles of his own school. Around it centre all those old memories which are the bitter-sweets of after life, whether that be tinged with sorrow or success.

The aula has invariably a grand piano, and generally an organ as well, and it is often used for singing exercises.

The gasaliers are most ornate, and the busts are generally plentiful and beautiful. On the platform is the direktor's reading-desk or pulpit. The windows are generally of coloured lass, admitting a subdued and subduing light.

But we must not stay admiring this room, for we have much more to see. The laboratories are what we are most anxious to see. The lecture theatre is generally the same for chemistry and physics, and is much like a well-equipped lecture theatre in an English university college. The desks, arranged in rising tiers, are dual, with sliding seats, and of varying sizes to suit the boys or girls using them. The windows are fitted with dark blinds, and the room is generally lit by gas. The demonstration table varies much, but is always well fitted up; for our impression, after going through the laboratories and lecture theatres, and after conversations with several teachers, is that the demonstration table is considered the sheet-anchor of the teacher of Science in these schools.

He has, it has been said, recently somewhat modified his views as to the advisability of teaching boys practical science in a laboratory, but generally he was satisfied that it is better for the youth to see beautiful and accurate experiments carried out before him by a skilled teacher who could simultaneously guide aright the observing faculties rather than for the pupil to toil along experimenting with unskilful hands and with but little help from outside. Although the German university is unrivalled as a school for the study of the Heuristic method, yet in the German school this method would, we fancy, meet with short shrift.

Consequently the German teacher's demonstration table and apparatus are beyond criticism. Whereas in an English teacher's collection you will find disused salmon tins, empty cotton-reels, home-made galvanometers and even balances, in the German's you will find none of these things, but exquisitely perfect models; expensive bits of apparatus; the latest developments of Hertz, Tesla, or Marconi, worked out in all variety of metal, regardless of expense. It is impossible to describe even a few of the beautiful pieces of apparatus we found there; we have seen nothing comparable in English schools; here is a model for showing the amount of heat developed in various electro-chemical reactions, there is a thermopile setting a magnet to revolve; again we have Ruhmkorff's coils of huge size and similar induction machines. What strikes a visitor in these physical collections is their finely finished specimens, the variety and number of them, the care with which they are looked after, and above all the liberality with which the school authorities supply them. Our impression is that very few university colleges in England or Wales could show a comparable collection of physical apparatus to that of the best German secondary schools, and whereas our English boys have to be content with a rough diagram or a book illustration, the German boy sees the actual apparatus at work. Consequently the German lad covers a wider field of experience, but his English rival covers a smaller field more thoroughly, because of his greater devotion to practical work in the laboratory, and of the tendency in our science instruction to throw a boy constantly upon his own resources.

The chemical laboratories in Germany are not numerous, and

the ones we saw showed little evidence of actual work. It is interesting to note that the tops of the working benches we saw were *grained and varnished*, and, when used, were protected from acids by pads of cardboard or asbestos!

We, like Dr. Russell,* were unfortunate in that we saw no class actually at work in the laboratories.

The laboratories we saw were evidently new, and, as has been already mentioned, only lately has the utility of the practical teaching of chemistry been admitted. Even now we doubt if its value is fully appreciated.

The laboratories are generally for the accommodation of 16 boys. The usual reagents are present above each bench. Inside the cupboards we noticed the usual set of test-tubes and wash-bottle, and inferred [rightly as we were afterwards told by a teacher] that the work is of the usual "test-tubing" character.

"Preparations," we were told, are considered more suitable for university students than for boys in secondary schools. A vacuum pump was fitted up in the laboratory, and the blow-pipes were generally blown by mechanical means. The operator could at will turn on a current of oxygen or hydrogen from the basement below. Each bench was also fitted up with electric connections, and a current of varying strength could be used whenever desirable. Gas also was turned on to each bench. Boys begin theoretical and practical chemistry when 17 years of age, so that chemistry is never taken up by the majority of German secondary scholars, who leave before that age, after completing the six years' course necessary to escape with one year's service in the army. The same holds true for physics, we believe.

Two hours a week is then spent at chemistry. In the higher and middle schools for girls both chemistry and physics are taught, but we were told that no practical work is done by the girls themselves; and the girls' schools we saw possessed no rooms fitted up for practical work in science.

It must, however, be emphasized that the apparatus and fittings for demonstration purposes that we saw in these secondary and higher primary schools are, in our opinion, far superior to those provided in similar English schools; moreover, it must always be remembered that in the opinion of many German teachers the educational value of laboratory and practical work generally, including manual instruction, is over-estimated in England.†

In practical physics we saw no instruction given, nor any

* See Russell's German Higher Schools, p. 150:—"Some of the new schools have quite extensive laboratory facilities, but, so far as my experience goes, they are seldom or never used by the students."

† It is unnecessary, perhaps, for us to point out that in no country in the world is the teaching of science, judging by its products, so successful, so thorough, as in Germany. The fact that many of our most brilliant modern English chemists and physicists have received part of their training in the German Universities is sufficient evidence of the admirable training in practical science of the German University.

organised means of giving such instruction, though we were often told that some of the boys help the professors in their work.

This question of the value of practical teaching in science has been, like all pedagogic questions, very thoroughly discussed and examined in Germany, and it would be unfair to lay undue emphasis on the strong condemnation of the lack of this practical training in the German secondary system of education, even when pronounced by so able and experienced a teacher as Dr. Riedler, of the Royal Polytechnic of Berlin. [See Report of the Commissioner of Education, U.S.A., Vol. I., 1892–3.] These views would not be accepted by possibly the majority of German teachers, and we draw attention to them only as showing that the question has been fully investigated and ultimately settled to the satisfaction of most secondary teachers in Germany.

We remember a secondary teacher laughing at what he good-humouredly called our "new fad," manual training. "You English," said he, "already do more than enough for the physical development of your boys with your football and rowing and cricket, why not turn your attention a little more to the mental faculties? You are apt to forget that your boys have heads."

In the schools which we visited we saw no manual training, nor indeed did it form a portion of the curriculum. It is perhaps hardly necessary for us to point out here how much Germany, and particularly the Leipsic school, has done for the recognition of manual training as an educative instrument in primary and secondary schools.

Even the cultivation of the child's self-activity as practised in the Kindergarten did not escape the jeer of a secondary teacher.

But to return to the school. The demonstration table for the teaching of chemistry is all that it should be. Gas and water fittings, electric current fittings, vacuum pumps in-draught and out-draught, supplies of hot and cold water, drying ovens, mercury trough, in fine whatever may have entered the mind of demonstrator is to be found here.

We cannot dwell further on this—for we must say something of the fine Natural History Museums attached to all these secondary schools. Here again we cannot—an we would—go into detail.

It would require an expert in such matters to catalogue the variety, the luxuriance, and general excellence of these specimens.

We should here mention that German firms have made a special point of manufacturing and preparing physical, chemical, and natural history specimens for schools to an extent quite unknown in England.

These magnificent specimens of natural history, ranging from the lowly but exquisite seaweed, bees, butterflies, and specimens illustrating mimicry, &c., up to the majestic carnivora are ample evidence of how enterprising these German firms are, and also how wide their clientèle must be. These specimens we were told are used not only to illustrate the natural history and

geography lessons, but also as models for the Art Classes of the school.

In some of the best gymnasien a separate lecture theatre is provided for the lessons in Natural History. This is fitted with a powerful lantern for illustrating the lesson, as indeed are most of the science lecture theatres we visited.

To illustrate the Botany lesson of the day we saw a bundle of plants in the hall of the school just brought in from the Municipal Botanical Gardens. Thus do they concentrate their resources in Germany!

Another interesting arrangement was the laying on of a telephone between the singing-room and the physics room so that experiments in the analysis of sound may be conducted with all the advantages tnat appertain to sound at a distance.

Another small room we noticed was fitted up with the necessary apparatus for the periodical weighing and measuring of the pupils. The conference and teachers' rooms generally call for no comment. The chart room is in the basement, and no pupil is allowed therein unless accompanied by a master. Here are kept maps, models, classical and historical charts, books of views, geographical and historical, and in fact all the illustrative material necessary for proper teaching. Also in the basement is the boys' library, managed generally by an assistant master, who for his trouble receives 100 marks per annum.

It is interesting to observe how very large a proportion of these boys' books are by English and American authors—Scott, James Grant, Cooper, Captain Marryat, etc. Up above on the first landing is the teachers' library, a collection of many thousands of volumes in German, French, and English.

That reminds us how common it is to find in Germany secondary teachers who speak English with comparative fluency and ease, and also how much study they have devoted to the English school system, of which, however, they have not generally seen the best side. "There is no other country in the world," said a German direktor, "that would tolerate such a system of private and so-called secondary schools as yours."

"You must take to conscription, then your secondary schools will improve," insinuated another head teacher.

Just a word as to the class-rooms; these are still of the severely simple and bare character noticed in the primary schools. The Imperial portraits and busts are more highly finished, and the apparatus generally is more complete and costly. Gas or electricity is the illuminant. In the lower classes one sometimes sees the points of the compass painted on the ceiling, and a metre-length painted on the wall—and also a square of one metre side. The desks are invariably dual and of varying size, and the class-rooms themselves vary, as the three upper classes [from 16 upwards] are generally considerably smaller than the lower.

The Turn Halle or Gymnasium remains to be described; this is generally an annexe to the main building, standing within its own walls, and generally open to the roof, with stays across. It

is beautifully clean and everything as "spick and span" as on an English man-of-war. The apparatus is of every possible kind many of them quite new to us, though amongst others that we recognised were—

Climbing ropes,
Climbing ladders,
Rings,
Giant's stride,
German horse,
Climbing poles,
Jumping stands,
Fencing sticks and guards,

and everything in fact that would seem necessary to teach the "young idea" how to walk and to carry himself well, and to nourish a sound mind in a sound body. A grand piano was invariably present.

One ornament we noticed in a Frankfort gymnasium was a wreath of oak leaves in a glass case. This is a prize competed for amongst the schools. Five champions from each school are chosen to run 1,000 metres; but, instead of running straight through, the lads are placed at stations and carry on the "staffeten" from one to the other, the school whose representative reaches the 1,000-metre post first winning the wreath of oak leaves.

Gymnastics is taken by forms, and generally by the form master. The exercise is stated verbally by the teacher, who then plays the piano, and to this music the exercise is carried out. Some of the girls' exercises in particular called forth unstinted admiration. The deportment and carriage of the girls was magnificent—they walked like duchesses. The legs are thrust well forward, the foot kept horizontal, and the toes catch the ground to the time of the march. Exercises were carried out with wands, which were thrown sometimes in the air from one hand to the other, sometimes to the next girl, and so on to the time of the piano. It was a fine exercise and finely executed. The dumb-bells used by the boys vary in weight from one kilo to two kilos, and are curved, not straight as in English schools. These are kept on racks, and when required a boy runs from the ranks, selects three pairs, taking one himself and distributing the other two pairs to his neighbours.

As a contrast, we must mention the gymnastics we saw in a country school of 20 children. The girls were taken in needlework by a woman from the village; the boys meanwhile being taken by the master in gymnastics in the playground. The battalion, nine in number, were typical country lads, and were presently joined by two little boys, sons of the proprietor of the castle close by. We were told by the master that these boys come down for certain lessons to the school. First they marched in single file around the playground kicking the left leg out much more than the right, as is the custom. Then they were called individually forward for exercise on the horizontal bars.

This was followed by games—real romping games that would not have shamed the heart of an English boy—and it was pleasant to notice the unalloyed zest with which the little aristocrats entered into the games, giving and taking with the best of the sons of their parents' servants.

German school games are not as bad as we had expected, though it is true to say that the only boys in Germany are the girls. It is the rule in country schools, at any rate, to see during playtime the boys slouching round and gossiping, or taking a spasmodic interest in the performances of one of their number on the bars; whilst the girls are wild with excitement over one of their many ring games. The German child's games are interesting, containing as they so often do some remnant of an old world legend, and carrying one's mind back to the days of saga and myth.

Of the games in the town schools organised and cultivated by special officials, as they have been for fifteen years, one cannot say much in praise. We saw boys play football (Rugby and otherwise), but we would fain refrain from criticism, for it is not the officials' fault. They have to go slowly, as the parents have not yet been educated up to the value of school athletics. The games the secondary school boys play in the school playground struck us as being of a rather elementary character. For example, "rounders," though a good old game, does not afford much scope for skill on the part of boys 17 to 19 years of age; and another game in which a ring of boys mounted on other boys' backs endeavoured to pass a ball on whilst the "horses" try to stop this seems open to the same criticism. We even saw big boys play "twos and threes."

Reference has already been made to the relative comfort of the German elementary school teacher's home. There is another matter that struck us, and that is his high social status. He is, let it be remembered, a well educated civil servant, paid fairly well as salaries go in Germany, has absolute fixity of tenure, and a pension at 65 years of age. Generally he ranks second to the local clergyman's first in town affairs, and is a man of weight and standing. Self-respecting, abstemious, and obliging to visitors, he is one of the best types of German—he is cultured, and has a fluent tongue. We were told [and we of course report it with all reserve, and without in any way attempting to appraise the matter, for we had no opportunity of judging for ourselves], that the local Protestant [and sometimes Catholic] clergyman is recognised by the Government as a kind of unofficial inspector; that is to say he performs the same functions as our "school correspondent," plus the power of writing private reports on the school and schoolmaster to the Government Inspector. As this latter official can only visit each school about once in five years he has to rely very much on the reports of these clerical correspondents. Some of the teachers allege that unless you go o church regularly you are subject to continual worry by some

of these local inspectors. Many of these complaints we were told arise from the unsympathetic way in which the clerical inspector, who attends the annual examination for classifying the children held at Easter, supervises the examination.

Another grievance of the German rural teacher is the abnormal size of his class as compared with those of town schools. This disparity in actual numbers did not strike us but the varying ages of his class, and the fact that he has sometimes to teach at least three sections simultaneously are undoubtedly a heavy burden.

There is a great similarity in the way in which this problem is met, and one may state as a rule that the Time Table is so drawn up that only one oral lesson is taken at a time. The German teacher would not attempt to take say two classes simultaneously in reading, handing one over to the wisdom and experience of one of the older scholars.

He will, for example, begin with the lowest sections, *i.e.*, children from 6 to 8 years of age. After a rapid exercise on the ball frame he will write on the blackboard the following exercises:—

1 + 1 =
11 + 1 =
111 + 1 =
1111 + 1 =
1 + 11 =
1 + 111 =
1 + 1111 =
11 + 111 =
111 + 11 =

These children then take out their slates, clean them, and proceed to busy themselves with the above exercises.

The teacher then takes the top section, *i.e.*, children from 10 to 14 years of age, in a Geography and History lesson with the necessary apparatus and illustrations. This lesson is oral throughout. Meanwhile, what is the middle section doing? Well, they simply sit and listen, so that by this constant listening to the lessons given to the first class they will, when their turn comes, have made a fair start in the memorising of many facts. This plan we found everywhere in small schools. There is indeed a great similarity between one elementary school and another; as a German teacher said, "They are all shorn over the same comb."

German primary teaching has been so highly developed as to be now a fine art, but like all such there is to be noticed in it distinct evidence of formalism. Though we have had, and shall have, occasion to praise much in German principles and methods, yet we believe that often the teaching is too set—it seems to lack the spontaneity, the variety, and the resource that characterise the highest type of teaching.

The answers of the children are often formal and stereotyped, and unless given in the particular form acquired by constant practice are not as a rule accepted.

A child will stand up and give an answer that is practically a set speech, the teacher occasionally prompting with a word.

There can be little doubt that though language exercise is highly and justifiably cultivated, yet that the desire for the complete sentence and the correct form of the answer has sometimes led them to sacrifice the spirit for the letter, and indeed at last to excite the ridicule of the public cartoonist.

The geography and history lessons of the primary school sometimes suffered from this excessive cultivation of language—this desire for form.

There was occasionally also, we thought, too much reliance placed upon the memory and not sufficient appeal to the experience of the child.

But in other schools, and amongst the best primary teachers, we found the principles of Herbart forming the foundation of the school curriculum. The best German teachers are generally Herbartians.

Even though it be a tiny country school one may notice the master's spirit there. The five formal steps of instruction are closely observed, and concentration and correlation of studies constantly kept in view.

The German primary teacher has been through what is practically a six years' course of training, and this training is deliberately designed not to be so much a broad as a deep one. Hence, in educational matters, the philosophy and history of education, and in all that appertains to the school, he is a past master, but foreign languages are not taught in the normal schools.

Foreign systems of education are, however, often the teacher's hobby; hence, we found that English acquired in the home was sometimes an accomplishment of which the elementary teacher was justly proud. One of his dreams was some day to visit the British Museum.

The German rural school begins at 8 a.m. in the summer months, and 8.30 a.m. in the winter, and goes on until noon, with five minutes' interval between each lesson and a quarter of an hour at ten o'clock. The afternoon session is from 2 to 4 p.m., but by a Government order if the thermometer stands at or above 25 deg. C. at 10.30 a.m. then no afternoon school will be held.

The length of the morning meeting varies according to the age and class. It is not unusual to see one class dismissed at ten o'clock, others at eleven, and the remainder at noon.

The children generally have home lessons to do, which a teacher assured us ought not to take more than half an hour. He admitted, however, that the children were overworked, for daily after school and on half-holidays they have to assist in

farm-work. Out-of-school employment is not uncommon in Rhineland.

In the secondary school the hours of instruction are from 7 a.m. to noon, and from three o'clock to six o'clock in the afternoon, but four half-holidays are given weekly.

But to these long hours must be added the time necessary for the home-work set. How many hours this involves it is difficult to say, for estimates vary. The intervals are as before mentioned.

This is the most serious blemish in German education. The number of lads wearing spectacles, the weary, pallid faces, often evidencing strong anæmic tendencies, are a mute but powerful reproach, and show that there is a dark, as well as a bright, side to German educational supremacy.

German children are always punctual; at least, we never saw a child come late to the public schools. It is a novel sight to see girls and boys trudging along the highway in their sabots, and an immense square knapsack covered with goatskin strapped on to their backs.

As for attendance, we made inquiries and saw several registers of absentees. These are some of the results. "Two per cent. all the year round is the number of our absentees." Another school of 460 children had 15 children absent, the reason being known in each case. In a class of 62 children three were absent, and on inquiry the monitors for each section of the class stood up and gave the reason—illness in each case.

In another class two girls were absent by leave of the class mistress to attend a companion's funeral. A reprimand by the head teacher was the immediate result of this unheard-of leniency, for, as he told us, the funeral must be completed by 8 a.m. and the girls could have attended at 9 o'clock. In a country school of 22 children one child only was, and had been, absent for twelve months; cause, illness.

In the secondary schools absence, except for illness, is unknown. German parents are too frugal to allow this waste.

The school law of attendance is so clear that it was on one occasion elucidated for our edification by the village innkeeper!

The schoolmaster sends the list of absentees to the Mayor, by whom it is despatched to the local head of police. This functionary orders one of his myrmidons to impose the fine and collect it there and then. There is no time for wriggling. If it is a bad case, then the policeman hales the offender to prison. The method is short, sharp, and, above all, effective.

In quoting figures on school attendance in Germany we must remember certain facts.

Children under six years of age do not attend school and are not on the registers. There are, in proportion to the population, many more schools in Germany than in England, so that the schools are much nearer the children.

The isolated homestead is almost unknown in Germany. We cycled many miles through some of the most populous districts of Germany, yet rarely saw a dwelling between the villages. The farmers all live together in the villages, possibly for mutual safety in time of war.

German children rarely walk any considerable distance to school.

At L———t, a village of 3,000 people, we found that in the centre of the village there was a large Catholic school. At each end were two small Protestant schools, one of them very much under-staffed. When we asked the master of one of these Protestant schools why they had not concentrated their resources upon one good school, as the Catholics had done, he told us that one school was much older than the other, but as the population increased and the village grew in length the parents objected to sending their children to the school at the other end of the village. This school was distant from their homes *nearly half a mile!* Their complaint was recognised and a new school built!

Many of the primary schools in the districts we visited are now free, but in the larger number fees are still charged. The children in all primary schools buy their own pens, books, paper, slates, etc. The girls' higher grade or middle schools charge a fee of 30s. per annum. The high schools or proper secondary schools for girls in Frankfort-on-Main charge from £5 to £7 10s. per annum. The Oberrealschule at Cologne for boys charges an annual fee of £4 10s., whilst the Gymnasien and Realgymnasien at Frankfort charge £7 10s. per annum.*

The average German considers his national system of education the finest in the world, and he more than insinuates that we should do well to try and follow his example.

But he does allow himself to admire some things even in the English educational system. A rural teacher said to us, "It is your continuation system that we country teachers envy—your University Extension movement, Mechanics' Institutes, and Evening Classes. You, at any rate, give young people in most country districts an opportunity of building up more advanced knowledge on the elementary course received in the day school, whereas we country teachers see our best pupils for want of mental nourishment gradually lapse into that primitive barbarism from which we tried to lift them. It is so disheartening."

Why is it that these national systems of education have so transitory an effect and are appreciated so little by the peasantry? Is it that the menu of the feast is not to their liking?

This, at any rate, may be said; the salvation of the rural child is not summed up in a knowledge of the three R's.

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* It is interesting here to compare the fees of the Welsh Intermediate Schools. "The highest fee actually charged in any school is £9; the lowest £2 2s.; the average being £4 15s. 8d." Annual Report Central Welsh Board, 1899.

In Saxony and other parts of Germany, as is well known, Continuation Schools are compulsory. Frankfort is about to follow the example. After 1901 every Frankfort child will have to attend a Continuation School for six hours per week until he has reached 18 years of age. They are now getting the courses ready and some of the authorities are already studying the work done by the great English School Boards in this direction. Amongst the subjects taught in these Continuation Schools are baking, locksmith work, and ordinary commercial subjects. The teachers are the day-school teachers, and they have to make themselves experienced in the work by actually attending at bakeries, locksmiths' and commercial houses in the city.

We propose now to briefly discuss the teaching of some of the subjects of instruction not yet touched upon.

Writing is rarely set as a specific exercise, and copybooks with headlines are unknown—"all the writing should be well done, not some of it," said a teacher.

And it is well done; of the quality of the German child's handwriting there can, we think, be no two opinions; it is uniformly good, and the only possible variation to our minds was the degree of goodness. The writing in German characters is generally better than in Roman.

In composition we were struck by the number of religious and patriotic themes chosen—some of the exercises, though showing distinctly morbid tendencies, were clever, and the ideas unusual for a child; we append a translation of one taken from the exercise book of a boy of 11 years of age in a rural Catholic school :—

"THE CRADLE AND THE GRAVE.

"The cradle and the coffin are both resting-places. The cradle, as well as the coffin, is made of wood, possibly even out of the self-same tree. Man is laid not only in the cradle, but also in the coffin. Parents lay their children in the cradle, and as a rule children lay their parents in the coffin. Into both tears are shed—into the cradle tears of joy, into the coffin tears of sorrow. At both there is hope. At the cradle people hope that the child will become a good brave man. At the coffin people hope they will see the departed loved one again."

But this is not always so, and even in the teaching of composition there is sometimes too little originality and spontaneity. We were told by a rural teacher that the teaching of composition in his school is begun by getting the child to commit portions of his "Reader" to memory. Thus he would take one portion of his class in oral work, whilst the other portion is committing some lines of the "Reader" to memory, and subsequently writing this on slates and then comparing this with the original.

During the reading lesson the blackboard and other necessary apparatus and material are always at hand. Each child has a book, and in the lowest classes uses a slate pencil for pointing

The class of 60 to 70 children is divided into sections. One of these stands up and reads a paragraph simultaneously in a curious sing-song. The others follow silently with their pencils *and lips.* There is very little expression observable. [We fancy the German teacher recognises the uselessness of looking for "expression" in children of six to seven years of age. What is obtained under such conditions is not expression but mimicry.] After this the whole class reads the paragraph simultaneously, and this is followed by individual reading.

What impressed us was not the method nor the results so much as the perfect handling of her class by the woman teacher. In these reading lessons we noticed that much stress was laid on correct articulation. The teacher would repeat a word or a sound over and over again—sometimes even calling upon individual children to observe the formation of her mouth and to imitate it. Then again in another reading lesson we observed the exaggeration of the intermediate or final vocables according as local pronunciation required special emphasis to be laid on one or the other.

These children we were told learn to read very quickly. Children, for example, who had been in school only four months read with fair ease the lessons in script character.

But they also get to know it by heart, for only about 20 pages are covered in the first six months.

To avoid this memorising a teacher had practised her class in reading *backwards*, much to the chagrin of the head master when he saw we noticed it. How small a world this is!

The reading seemed to us to lack vivacity, as also did the recitation, excepting in the big town schools. The German boy when well trained is not so self-conscious nor so sensitive to ridicule as are English boys; he is not afraid to "let himself go" in a pathetic or patriotic poem, and a rendering of the "Erl-King," which we heard by the first-class boys in a Cologne Volksschule, is a memory which we hope to long retain. There was a ring of true feeling in the boys' voices, which was readily distinguishable from the mimicry of a teacher, however well done.

Singing suffers from the same weakness. In the average school there is a lack of vigour, vivacity and sometimes firmness. There is a want of that verve, attack, and dramatic action which we in Wales, at any rate, are accustomed to look for in our school singing. Of course we heard in some of the best schools very fine singing, but this was the exception. Three-part songs are often heard even in small country schools. The tonic sol-fa system we found was quite unknown, and we failed signally in attempting to elucidate its mysteries.

The singing was often spoilt by the teacher not using a tuning fork—the pitch was too high or too low

All teachers are taught the violin at college, but few seem to care to use it. It is a troublesome instrument, but the only one in the rural school.

The exercises in note-singing which we saw were not par-

ticularly well done, but we saw very little of this, and still less of voice training, so that our impressions of this branch of the school curriculum are so vague as to justify us in laying but little emphasis on them.

The drawing in the primary schools was mainly from the flat; practically no model drawing is taken, and the work we saw was not of a particularly high order. Generally in country schools one hour a week is devoted to drawing and two hours to needlework. The girls, when they do take drawing, apparently confine themselves to diagrams for their needlework exercises, and these are of a somewhat elementary character, consisting largely in drawing along and through squares. The needlework is mainly of the "sampler" kind—we saw no garments worked, and very few specimens of darning and patching, and those not of a brilliant order.

Of the drawing in the secondary schools it is difficult to speak too highly. The room is specially fitted and designed for this purpose, with appliances for the requisite light and shade. The slightly inclined desks are very substantially built with a top about three feet deep.

Along the edge of the desk are movable stands, which may be raised or lowered, and upon this the object (different for each boy) to be sketched is placed. The three-legged stools are of various heights.

The work we saw was finely executed, and some of the designs very beautiful.

The collections of objects—classical figures, natural history specimens—and all the paraphernalia necessary for good teaching were ample.

Of the teaching of geography and history we have already spoken, but something remains to be written of Heimatkunde, or home-geography, and of the principle of cause and effect in geography teaching.

Much of the instruction in these subjects in the country schools seemed uninteresting and apathetic. There was too much formal question and answer, too little appeal to the child's experience, imagination, and emotion. Illustrations were not plentiful, and the blackboard was not as much used as we had expected. There was but little of the spirit of Carl Ritter in the lessons we heard, speaking generally, but there were noteworthy exceptions. In the town primary schools, however, we heard much to praise. The home-geography lesson was often very well done.

In a school at Cologne we heard a fairly typical lesson in Heimatkunde to a class of ten-year-old girls.

Teacher: What city do you live in?
Pupil: We live in the city of Cologne.
Tr.: What is the name of your school?
P.: The name of our school is the —— school.
Tr.: What street is the school in?
P.: The school is in the —— street.

Tr.: What do you see in the street?

P.: We see horses, carts, people, and also soap works in the street.

Tr.: To which gate of the city does this street lead?

P.: It leads to the —— gate.

Tr.: Yes. Now see I have drawn a plan here. Now tell me where does this street lead to?

P.: That street leads to —— [naming a small village near].

Tr.: Yes. Now how would you reach this village?

P.: We should reach that village by the tramcar.

Tr.: Yes. Have you ever gone another way to that village?

P.: Yes, we have gone there by the Rhine steamer.

Tr.: Oh, yes. I remember many of you have I think, been up the Rhine, so tell me what you remember.

The lesson then proceeds, the teacher gets the children to tell him what they saw on the voyage—the flat agricultural country up to Bonn, then the mountains of the Siebengebirge range, and culminating in the Drachenfels.

The children give in their own words the old legend of the Dragon, and the lesson drifts into legend and mediæval romance, and is concluded with a fine rendering by the girls in poetry of this old Rhine legend.

Thus the lesson begins in the class-room of to-day, and proceeds by easy transitions until it ends in early times on the side of the Drachenfels.

Another lesson we heard had for its subject the old Eschenheimer Tower at Frankfort. It was given by a master to a class of girls of nine and ten years of age.

The lesson was illustrated by a photograph of the tower and a plan of the city and its environs.

Teacher: Look at this photograph. Tell me what does it represent?

Pupil: That is a photograph of the Eschenheimer Tower.

Tr.: Why do we call it the Eschenheimer Tower?

P.: Because the road through it leads to Eschenheim.

Tr.: Yes, here it is on this plan, and we see from this that the tower forms part of the old walls of our city. Do you know any other towns surrounded by walls?

Cologne, &c., are given by the pupils.

Tr.: What do you call such towns surrounded by walls?

P.: They are called fortified towns.

Tr.: Why were these towns fortified?

P.: So that in time of war people could take refuge within the walls and the gates in the tower be closed.

Tr.: Were the gates always open except in time of war?

P.: No, they were closed at eight o'clock each evening, and the people who came late and wished to enter had to pay a fine of two marks.

Tr.: What do you notice about the style of building?

P.: We notice that it is composed of three parts: upper, middle, and lower.

Tr.: What do you observe on the lower part in the picture here?

P.: We observe that ivy is growing on it.

Tr.: Is it exactly like that now?

P.: No, the ivy is not so plentiful now as in the picture.

Tr.: Do you know the old saying about the ivy?

P.: Yes: "There shall always be strife in the land until the ivy reaches the top."

Tr.: Why is it that the city does not possess as many gates now as in old days?

P.: Because they are inconvenient and in the way of traffic.

Tr. Why do some people, then, wish to preserve the old city gates, and not pull them down?

P.: Because they are reminders (souvenirs—andenken) of the past.

Tr: Then why do you think this particular one has been preserved?

P.: Because it is so much prettier than the others were.

Tr.: Let me see how many of you have been in the tower? Yes. Now on what day may one visit the tower?

P.: One may visit the tower on Sundays.

Tr.: Tell me anything of interest you noticed at the entrance of the tower.

P.: I noticed a very large ring there.

Tr.: What else may still be seen up in the tower?

P.: A whimsical little head (Spasshaftes Köpfchen) may be seen there.

Tr.: Yes Listen, and I will tell you the story of this whimsical little head.

And amid breathless silence he sketches the legend, taking his pupils' minds back to old times and old customs, building with all the skill of a master-hand a pile of old-world lore around this whimsical head in the Eschenheimer Tower. The children may have heard it before, but it was evident that the story was as interesting to them now as if heard for the first time.

The spirit of Carl Ritter is more often met with in the geography lessons of the town primary and "middle" schools. Some of the best lessons we heard in "cause and effect" geography were in the girls' mittelschulen. Among other things we recall impressions on the effect of railways on the prosperity of a country and the dislocation of population often produced thereby; on which bank, and why, of the Rhine does the grape grow more luxuriantly; a lesson which consisted in a comparison of the physical features of the boundaries of various European countries and the effect of these on international communication and knowledge. Then other points brought out were the trend of German rivers to the north and west and the cause thereof; some of the causes (physical and political) for the growth and prosperity of the Rhine province. Books of views, often very fine, are passed along from one girl to another. Each

pupil has an atlas much superior, we think, to anything at the same price here, and the Readers which are used also contain very useful pictures and maps.

The history is almost invariably closely interwoven with the geography. In the primary schools which we saw it called for no special praise, and was too often, we thought, merely a mnemonic exercise. A teacher told us that his history is as far as possible based upon and of a similar character to that in the Readers—in fact, that the children practically commit portions of their Readers to memory, hence these long set answers we sometimes heard.

We heard several object lessons and nature lessons.

In the former generally no object was present. The educative aim of these lessons is obviously language exercise rather than primarily the cultivation of the child's faculty of observation.

In parenthesis we may again call attention to this contrast between German and British ideals and aims. One may say that language exercise and the study of languages is the weapon the Germans have selected out of the armoury of "mind-tools" for sharpening the wits of their youth, both in primary and secondary schools. The mother tongue in the primary school, ancient and modern languages in the secondary school, are the German teachers' "Excalibur."

On the other hand, in our best schools, both primary and secondary, probably stress is laid upon those elements in the curriculum which directly affect character, and which cultivate self-reliance and resourcefulness.

We fancy that this attention to language, which is a formal study in itself, has given rise to that set and almost stereotyped character which we sometimes noticed in the teaching of the primary school.

But to return to the object lesson; the picture of a street or country scene is placed in front of the class and the children are invited to state what they see there.

These pictures are well got up, and sold at one shilling each. The school generally possesses a large number of them, kept, when not in use, in a portfolio.

The answers must be given in a certain form and in complete sentences.

Here is a fairly typical lesson. The picture represented a scene outside a country inn. The male teacher had a class of about 60 little girls from 6 to 7 years of age. These male teachers generally have a very pleasant sympathetic manner with the girls.

Teacher: What do you see in the picture, Elizabeth?
Pupil: I see a manger.
Tr.: What is the manger made of?
P.: The manger is made of wood.
Tr.: How large is the manger?
P.: It is about two metres long and half a metre deep.
Tr.: What is eating out of the manger?

P.: A horse is eating out of the manger.
Tr.: What does the horse eat?
P.: The horse eats hay.
Tr.: Yes, but what else does he eat?
P.: He also eats oats.
Tr.: What do you see, Lily?
P.: I see an inn.
Tr.: Where is the inn?
P.: The inn is on the roadside.
Tr.: Whom do you see at the door?
P.: I see the landlord at the door.
Tr.: Come and show me the landlord; yes, now tell me to whom is he speaking.
P.: He is speaking to the waggoner.
Tr.: Yes; now, Marie, tell me, what you can see in the picture?
P.: I see a tree in the picture.
Tr.: Show me the tree—yes—tell me, where does it stand?
P.: It stands in the garden.
Tr.: Why do you think they planted it so near the house?
P.: They planted it there so as to give a shade.
Tr.: What do you see, Elsie?
P.: I see a waggon.
Tr.: What is it loaded with?
P.: It is loaded with stones.
Tr.: No, these are not stones, come and see—now tell me what it is loaded with?
P.: It is loaded with sacks.
Tr.: Yes; now, Marie, tell me, what is this here on the trough?
P.: It is a bird.
Tr.: Yes, but what kind of bird?
P.: I do not know.
Tr.: What, have you never seen a sparrow in the street?
P.: No, I think not. [Great laughter, in which all join, including the teacher.]
Tr.: Now who will tell me what is a sparrow?
And some of the answers were—

It is an animal.
It is a small animal.
It is a bird.

Tr.: Yes, it is a bird, but how do you know that?
P.: Well, because it has two legs.
Tr.: But so have you.
P.: Ah, yes, but I have not wings.
And so the lesson proceeds, the teacher keeping in this, as in all other lessons, the doctrine of "concentration" and interdependence of studies in view, and generally concluding the lesson by a short poem or song bearing on some incident touched upon in the lesson.

Both the German teachers and certain societies are doing all they can to inculcate a feeling of respect and love for dumb

animals in the children, and a picture lesson in which an animal is referred to is often wound up by a pathetic little poem that serves to "point the moral and adorn the tale."

We would now speak of the modern language teaching. We heard a good many lessons in French and English, in various kinds of schools, and in almost all methods. In a certain classical school we heard one lesson in French conducted in the old or classical style, and we mention this because there has been so much written about the new method of teaching languages in Germany that many English people must have come to the conclusion that if there ever was in Germany an old method as we now usually understand it, it must have been a very long time ago.

In this lesson some fifty or more lines of the French author were read and translated into German. The teacher then asked in German, questions on various grammatical points arising out of the passage read:—*tout* as an adverb; construction after *empêcher;* possibilities for *faites* as a word to be parsed. One very good lesson we heard began with grammar in the old style and ended with conversation in the new. It was given to a class of 36 boys in III.b., who had been learning French for rather more than three years. For the first two years they had had six lessons a week, and they were now having four.

Boys in the class were asked to name the infinitives of some irregular French verbs, and give the German meaning. These French infinitives were then written on the blackboard, and the master went through some sharp drill in the various verbs.

Give the French for: ich will kommen, wirst du gehen, dass ich lese, ich möchte sehen, etc., the master meantime pointing to the infinitive of the French verb in question. The lesson was then continued almost entirely in French. German was, however, not absolutely forbidden, for when the words *ailleurs, fils unique* did not appear to be fully understood, the master did not hesitate to supply the German word.

Questions were asked in French on the subject of the previous reading lesson and elicited the following answers:—

Nous avons lu le petit Pêcheur.
Le petit s'appelait Toni.
Il vivait dans un hameau.
Son père était pêcheur.
Le petit garçon avait six heures (laughter).
Le petit garcon avait six ans.
Il ramassait du bois sur la grève.
Il portait le bois à sa cabane.
Parcequ'il n'y a pas de forêts sur les côtes de l'A.,

and so question and answer continued.

We heard how his parents did not return as usual, how he prepared his supper, how he at last fell asleep, how he was rudely awakened by the soldiery, etc. An opportunity arose during the lesson for distinguishing ligne and linge. Voilà une ligne, said the teacher, drawing one on the blackboard, mais qu'est-ce que

c'est que du linge, and the answer was given in German, Wäsche. This point came up because one boy had pronounced linge as ligne. The boys were asked to explain in French what was meant by mettre le couvert, and pot-au-feu, and to distinguish between pot, casserole, and marmite.

The French was distinctly fluent and ready, and the pronunciation was exceedingly good, except in the case of a few consonants, where bois, boulet, and ongle were very suspiciously like pois, poulet, and oncle.

We heard a good many lessons on Hölzel's pictures, the method being practically the same as that used with the young children in the object or picture lesson, only now the language was French or English instead of German. The following is a typical list of the answers we heard in lessons on the spring picture given to children who had been learning French fifteen months:—

Le tableau représente le printemps.
Le printemps vient après l'hiver.
L'automne vient après l'été, &c.
L'hiver commence le 23 décembre, &c.
Au fond du tableau on voit des montagnes.
Les montagnes sont couvertes de neige.
Les montagnes de X. ne sont pas couvertes de neige.
Devant les montagnes, il y a un château moderne.
Le château moderne est sur une colline.
L'autre château est en ruines.
. . . . . est entouré d'un parc.

After a few more questions and answers the class stood up and sang "Au Clair de la Lune," and a French version of "Ich hatt' einen Kameraden." "La Cigale et la Fourmi" was then given as a recitation.

We also heard lessons in which questions were asked about the contents of the class-room—the door, windows, ceiling, number of desks, number of pupils present, &c. But the children seemed to find this rather dull and uninteresting; one boy confused plafond and parquet in such a way that it was quite evident they were mere words to him. Another looked up to the ceiling to try and recollect the French for window.

In an English lesson a pupil answered a certain question by saying that the chair was behind the desk, presumably because that was the usual answer to that question, and the fact that the chair had been removed for our accommodation was not allowed to alter the almost stereotyped answer of "The chair is behind the desk." This class of question seemed to lack scope, and the possibilities of varying it being quickly exhausted, the questions and answers were rehearsed so often that they were known by heart. Many of the answers were little more than a repetition of the question in the affirmative form, with the addition of perhaps one word. "What is there between the window and the door?" "Between the window and the door there is a desk." A good many questions were exactly of this pattern, and could soon

be answered quite mechanically. This method, though doubtless very good for beginners, seemed unsuited to a class such as we heard.

The method of teaching French, etc., from a picture is very good in that it makes the pupils realise the meaning of the nouns, verbs, etc., instead of merely associating them with a corresponding word in another language; and to a certain extent, too, this method makes the pupils think in the foreign language, but the result of such teaching may easily be more showy than real and is liable to deceive the casual observer.

He is liable to think the pupils are holding a natural conversation in the foreign language, and doubtless that is the goal aimed at, and with a very thoroughly qualified teacher the end achieved, but as far as we saw this was not the actual result. As a rule the answer was a slightly altered form of the question, or it had become a stereotyped one from frequent repetition, and the pupil often found it disconcerting to his memory to look at the picture; he preferred to look away.

In the English lessons heard, we considered the pronunciation and accent distinctly better than in the French ones, but the idiom was not always so correct.

We heard several simple English poems beautifully recited by girls in a Mittelschule. If they showed a lack of interest in speaking about the contents of the room, they certainly made up for this by the feeling and expression they threw into their recitation of "The Blind Girl" and "Come down, dear Bird," and we shall long remember their recitation of "Little deeds of faith and love" and "Work while you work, and play while you play."

One French class we heard gave us illustrations of all these various methods in turn.

The lesson began with asking for the names of various articles of furniture in the room, proceeding to the number of desks, number of pupils present, and then to Holzel's picture of spring, where answers were given almost identical with those mentioned above.

Then practice in *punir* and *vendre* followed. Short sentences given in German, such as *wir werden nicht bestrafen, wir werden nicht bestraft, wir werden nicht bestraft werden.* After giving out each sentence, the teacher with watch in hand, said, "I shall give you two minutes to think it out." The answers were almost invariably correct, but this part of the lesson seemed to inspire but little enthusiasm. "Could they recite any poetry?" we asked. "Oh! yes." One boy attempted "Le Paradis," but the experiment was only a qualified success.

The boys then sang "J'avais un frère d'armes" and another French song in a way that showed they evidently enjoyed this part of the lesson.

They then opened their text-books and translated into French an exercise containing short sentences of the type of "La Trémouille ist von Ludwig XII. mit Ehren überhäuft worden." Grammatical points were discussed in connection with each

sentence; in this particular sentence the auxiliary verb and the prepositions were the subject of remark.

We were very unfortunate in not finding Herr Direktor Walter in Frankfort at the time of our visit, and although his representative and all the masters in the Muster-schule showed us every courtesy and attention, yet in the matter of modern language teaching no one could adequately supply the place of the direktor himself, who has made this his speciality.

In Cologne, however, we heard several excellent lessons in both French and English given by Dr. Vogels, the head master of the new commercial school there.

One lesson in commercial French was given, entirely in French, to a small class of students, 17 to 19 years of age, one of whom was an English boy from Hampstead. First came a recapitulation of what had been done in the previous lesson. The lesson for the day was then proceeded with. It dealt mainly with letters and bills of exchange. One or two German business letters had been prepared as home-work and these were now orally translated from German into French. Then books were closed and questions were asked in French on various points arising out of these letters. Give the French for such and such a phrase. Mention several common ways of ending a letter in French. How do English people usually end theirs? What difference do you notice between the two styles? Supposing you were a clerk in an office and your stock of envelopes had given out, what would you say to a fellow-clerk if you wished to borrow one from him?

Many little odd points were taken advantage of to give life and freshness to the lesson and to prevent it from becoming dry or formal.

One youth had to explain why he was absent from the previous lesson, another why he was wearing a particular bandage. Was it anything serious, and what remedies was he adopting?

Our presence also led to an explanation in French of who we were, where we came from, and what our object was in coming. It also gave point to two letters which were to be written according to certain detailed instructions.

A letter was to be written to a merchant in Swansea, enclosing draught on Baring Brothers, London, and the necessary intimation had also to be sent to Baring Brothers that they were being drawn on for so much at such a date.

These letters were very satisfactorily drawn up orally in correct French, and written versions of them would be required for the following lesson.

The accent in this class was beyond suspicion and the lesson itself left nothing to be desired. We were quite delighted with all we saw and heard.

We were equally or perhaps even more pleased with two lessons we heard Dr. Vogels give in English.

We will describe one of these lessons somewhat in detail. The class consisted of ten boys of 15 or 16 years of age. They had been learning English for 18 months, but only 5 months with

Dr. Vogels, and before he took them they had had no practice in speaking English.

The subject of the day's lesson was to be Scotland. It was really the repetition of a lesson given three weeks before. A map of the British Isles was hung up on the blackboard, and a conversation between master and pupils followed. The lesson had evidently been very carefully worked out, and one question led on so naturally to another that we almost forgot it was a lesson in English to German boys. It seemed far more like a most interesting lesson in geography given by an Englishman to an English class, so full of interest was it, and the pronunciation of both master and boys was so good that one could be pardoned for making the mistake.

Dr. Vogels explained that his system of teaching pronunciation in both French and English was entirely based on phonetics. No mistake in pronunciation, however slight, was allowed to pass uncorrected, and on one occasion a boy was made to come before the class and re-pronounce some particularly difficult word, Dr. Vogels meanwhile holding the boy's chin, so as to make him move his mouth in the required manner, saying, "Pull your jaw down, boy, and make your face long like an Englishman's." The lesson began by fixing the boundaries of Scotland, then came the physical features, Highlands and Lowlands, the two races and the two languages, the towns and manufactures, points in history or literature being touched upon here and there. "I endeavour to make the lessons interesting and real," said Dr. Vogels. "I describe what I have actually seen myself, and so the boys take a keen interest in their work." We may mention, as an instance of this, that when speaking of Glasgow, Dr. Vogels asked, "Have you ever been for a trip on a Rhine steamer?" "Yes, sir, I have." "Did you look down at the machinery of the boat?" "No, sir, I did not." "Well, if you had done so, you would probably have noticed that the boat's engines had been made in Glasgow. Now, you will know what one of the industries of Glasgow is."

The mention of Duncansby Head naturally led the conversation into an historical channel. The whole story of Duncan and Macbeth was then told by the boys. Shakespeare's play was mentioned, and so the boys were asked to take a steamer from Glasgow and sail down the coast of England and Wales, and up the Bristol Channel and up the Avon to Stratford.

Towards the end of the lesson, one boy of 14 gave a very finely executed recitation of "My Heart's in the Highlands." The poem was then analysed, and some idea of its author's life and age were deduced from its contents.

During the whole lesson Dr. Vogels had kept a particular point of grammar in view, when he framed the questions and guided the conversation. What this was, did not appear until quite the end, and then when the grammatical point was revealed as the English prepositions, it was found that instances

of all the common prepositions could be supplied from the earlier part of the lesson.

This had been a most admirable lesson, but at the end we could not help feeling that the lesson had been given by an unusually gifted teacher, and that in the hands of one less gifted it would have lost half its effect. The main outlines might have been the same, but the finishing touches, which show the hand of the real artist, would have been missing, and consequently the effect produced on the pupils would have been quite different.

What we admired most was the freshness of the lesson; there was nothing set or formal, everything seemed so natural. Such lessons must prove most exhausting to the teacher, and such teachers are born, not trained.

All the modern language teachers employed in secondary schools of the city of Cologne are in turn to be sent abroad to acquire in England or France the correct accent of those languages. The expense is defrayed out of the city chest.

Dr. Lüngen, Stadtschulrat, Frankfort, had been head master of two large mittelschulen for girls before he was made inspector of schools. He naturally takes a very keen and enthusiastic interest in the education of girls in Germany, and he has thrown his opinions into pamphlet form. This is published under the auspices of the "Frauenbildung-Frauenstudium" Verein.* He complains that outside Prussia there is a lack of interest taken in the education of German girls.

There are in Germany 300 high schools for girls, of which 200 are in Prussia, but of these 200 Prussian schools only four are State-aided, whilst for boys there are in Prussia 250 such State-aided institutions.

Dr. Lüngen also states that there is not adequate provision made for the training of women who are to teach in elementary schools. There is an insufficiency of training colleges. Many such women teachers are therefore drawn from the ranks of those who have been trained for higher-school work, but who have failed to pass the qualifying examination in all subjects. Moreover, he says that men who teach in girls' schools have not the same standing as those teaching in boys' schools.

In one respect, however, girls seemed to us, possibly owing to this smaller public interest taken in their education, to enjoy an advantage over their brothers. They are not so worried either at home or at school about lessons, and when the play hour comes they seem to have far more vitality than the boys. In the common playground of the primary school we frequently saw the girls singing, skipping, and generally enjoying their numerous ring-games, whilst the boys slouched about and looked on.

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* Knabenerziehung-Mädchenerziehung. Ein Vergleich, Frankfurt a/m, 1898, Moritz Diesterweg.

The following is a translation of the first verse of one of these ring games:—

Children, let us choose
What work we wish to do,
When our school days are o'er.

Make a circle quick.
Now let us stand within,
And each one say in what way
She wishes to earn her bread,
For work wards off want.

Anna, take three steps forward
Into the ring; stand straight and firm,
And quickly give your answer to the question.

ANNA: When I leave school, I shall be a seamstress.
I shall make long dresses and also children's clothes.

CHORUS: Ah! we are pleased that you intend
To make long dresses and also children's pretty clothes.

Other verses follow, in which a child chooses to be a cook, nurse, teacher, etc.

The German teachers and officials are proud, and we think justly proud, of the discipline in their schools.

They have evidently not a very high opinion of the discipline in English schools, of which, as we have already pointed out, the private venture is the type they know best. But, as we told them, the national ideals vary here again. We saw canes in two or three schools, but not in use. We believe that the cane is very rarely resorted to; it is not necessary. A German child sucks order and obedience to constituted authority in with his mother's milk. Discipline has become a national habit, and we verily believe it would be as difficult for a German child to be insubordinate in class as it is for an English boy not to be. More than all else let it be remembered that the German child is never made the subject of experiments by pupil teacher or newly fledged graduate.

There can, we think, be no two opinions as to the excellence of the discipline in these primary schools; and this is, we are convinced, due not to the rod, but to national habit and hereditary tendencies. These children are not cowed, though so orderly.

A mere verbal reprimand from her mistress brought a flood of tears to a little girl's eyes. The head master of a large school introduced us to his lowest class of boys, and asked the boys if they had anything to tell him. One bright lad of six years held his hand up, and amid the hearty laughter of the whole class said, "I would like to shake your big paw."

A large class of little girls about seven years old was being taken by their mistress in a reading lesson—for our edification.

We are all engrossed in our work when stealthily the door is opened, a curly head appears, a wild rush to one of the desks follows, and then we see the little stranger hugging her bigger sister, for whom she is waiting, and all this to the intense delight and hearty laughter of the whole class. But it is quickly over and the reign of law is resumed.

We once saw what would be considered a somewhat unruly class in a secondary school. The subject was drawing, and the master had actually to speak to the boys afterwards as to their conduct whilst he was engaged speaking to us. But the whole thing was a very feeble attempt at revolt, and would hardly have aroused the enthusiasm of a Public School boy.

The fact that all the masters in the various schools have served their time in the Army, and that many are officers of the Reserve, is not without visible results in the discipline of the class-room.

On the entrance of the master all the pupils rise, and do not resume their seats until he is seated, or until they receive the word of command.

A boy is asked to clean the blackboard or to write something on it. He loses no time, but trots lightly up to the board, performs the task with smartness and despatch, and quickly but quietly skips back to his place, very much as one sees an orderly run up to his commanding officer, salute, receive orders, and go off at a run.

Very naturally, this is still more evident in the gymnastic exercises, where, for instance, four boys at the word of command run from the ranks, place the parallel bars in the required position, and quickly rejoin their ranks, all this reminding one very much of the way artillerymen serve their guns.

Even the weekly bath shows this. The performance is divided up into definite stages, and each stage proceeded with at the word of command.

Thus the Army affects the school discipline, and the school discipline in its turn prepares the boys for their future service in the Army.

The Kindergarten, though a product of Germany, has not developed there so freely as it has in America or even in England. The child is not of school age until six years old, and in the rural districts nothing is done, except perhaps in the home, to bring good influences to bear on what are often after all the most impressionable years of a child's life. In Frankfort a private society has done, and is doing, much for these little ones, both rich and poor. The poor children are supplied with a mid-day meal for a penny a day.

We will describe briefly a visit to one of these private Kindergartens in Frankfort. The head mistress was Fräulein Ella Schwarz, and most obliging and kind we found her. We tran-

scribe our notes written at the time:—"There are about 40 children present to-day, in winter about twice as many. This society supports three schools, two for the children of poor parents and one for those of rich. The hours of school are from nine to twelve in the morning and three to six in the afternoon. As the children come in, they walk up and shake hands with the mistress. We saw the time-table of the pupil-teachers—*i.e.*, girls who are qualifying as nursery governesses or Kindergarten teachers. The former class are taught laundry work, as that is a *sine quâ non* for the post of governess in German families. These pupil-teachers never teach, but only watch the properly qualified instructors teach. The children are in three classes.

"In the study of number, five is the limit for the first-class children. No writing is taught, but only drawing, and no reading from books is taken. Slates of the usual Kindergarten type are used. The teacher showed us specimens of the work done in crocheting, embroidery, mats [for number and colour], beads, &c. As specimens of manual skill these would not compare favourably with what one often sees at home, *but*, as the teacher says, they are utilised as educative instruments for developing mental and not as so much manual dexterity.

"'Our first lessons,' said she, 'are taken up in teaching the children to distinguish between one and two, long and short, broad and narrow, hard and soft, &c.'"

The time-table for pupil teachers includes one hour daily, 8 to 9 a.m., for studying the philosophy of the Kindergarten.

Both the head teacher and her first assistant strike us as being singularly able and sympathetic teachers. No time-table is drawn up for the school instruction, only a syllabus.

As little formality as possible is introduced, but the lessons are all arranged on the "concentric" system. For example, the teacher showed us some flax-plants in the garden which the children themselves had planted and watered. These plants were now about 2½ feet high. The flax plant had been the subject of a song and a poem; they had gathered its leaves, pricked and embroidered designs of them, and had used the leaves for counters in a number lesson. They had drawn them on their slates by laying the leaf on the slate and making a point at each end, then a straight line was drawn to join these two points, and the outline of the leaf completed.

Another set of lessons centred around the beehive kept in the school garden and the wax obtained from it.

We were shown little wax candles which the teacher had made in front of her class from the wax obtained in this way.

The class-rooms here are very similar to ordinary large rooms in a private house; in fact, the intention is to have everything as like home and as unlike school as possible. The walls are papered with very pretty patterns, and the room is bright and cheerful.

The children sit at low tables, five on each side facing

each other, and each table is a class—*ten children to one teacher.*

The playground is covered with sand, and at one end is a sand-pit, which is evidently the *El Dorado* of the children. At the further end of the playground is a shed with no sides, and under this are placed tables and seats, so that the children may work in the open air. Many of the children were busily at work in the sand-pit when we arrived, others were playing at ball with tennis-racquets, whilst the boys somewhat aimlessly (as boys will) wheeled barrows of sand here and there. *Every child was busy*, and so were the teachers—watching and guiding them. Everyone seemed thoroughly happy, though the thermometer was above 90.

The girls had little aprons on and the boys had also a kind of apron or over-all.

The mistress called them, and they marched in three abreast to the "*eins, zwei*" of the teacher. We saw the first class at "Rings." These were served out from a tin can by the teacher, five at a time, some complete rings, others quarters, and others halves, some of them being large and others small. The teacher in a quiet conversational way told them what to do. They then proceeded to produce the design required. The teacher did not make a design herself, but walked around the table correcting mistakes and chatting with her pupils. "We have a difficulty," said she, "in getting the children to distinguish between left and right. They watch the designs of their companions opposite, and feel that theirs should be collaterally like his instead of its image. It would be better for some lessons if they sat in dual desks."

She next told one of the children to make a new design, and this the others copied. The lesson was concluded by a competition—each child to decide for himself as to his design—and "let us see whose will be the prettiest." There was a "good think," and then they set off each after his own heart. The winner was an artist's son, and a very beautiful design it was, though a pretty little Jewess ran him very closely.

Whilst this lesson was on, the youngest class (including a visitor of the mature age of two years) was busy at "mats." No needles were used, but stiff cardboard slats and large squares. In another room a class of ten children was playing the "ball" game, which is an exercise for teaching "time" to children.

The children sitting opposite each other throw a coloured worsted ball back and fore across the table to time, the time being given by the teacher's song

We were told that much difficulty is experienced in getting children to appreciate "time."

After this the tables were cleared away and all the children gathered in the same room to play games.

First they marched round in twos to the music of a song, the bigger children being interspersed among the smaller ones, and

the teachers here and there in the train. Then came a round game called "The lost pussy."

The afore-mentioned little Jewess goes to a corner and hides. Another little girl enters the ring. The children all sing a doleful tale of pussy's departure.

The little one in the ring hunts everywhere (even amongst the gas jets) for dear pussy and promises in her trouble all sorts of nice things for pussy. Pussy, enticed by these promises, returns, and all "live happy ever afterwards." Then a boy becomes pussy, but he sets everyone roaring with laughter as he occasionally forgets his rôle of pussy and assumes that of a doggie.

The teachers are most energetic, and the sight of a glass of water which one of them sent for, sets all the throats thirsting. "Yes," said the head teacher, "the sight of a glass of water always makes them all thirsty."

After this the children catch each other's tails, and with fearful whistling the train starts off for the garden, where they play until it is time to go home.

The children appeared very happy, and although some of them are much petted at home, yet they soon shed this here. [The teacher pointed out to us a little lad, badly scratched, the victim of a badly-reared offspring of a foolish mother. "Those home pets," said she, "are always the unhappiest children in school."] Two points impress us—

1. The small size of the classes.

2. The (apparently, at any rate) exhausting character of the teaching.

We also saw a good example of a special school, namely, a Trade (or Fach) School.

This school was built and is administered by the municipality. It is located in one of the most fashionable suburbs of the city. The instruction covers repoussé work in iron and copper (and very beautiful artistic work we were shown), mathematics pure and applied, and art subjects of all kinds. We saw no manual instruction in wood, nor any evidence of practical work in science.

The rooms for the art classes were most elaborately and richly fitted up with every contrivance possible.

The busts and models in plaster, relief castings, &c., classical and other figures, were scattered in profusion. In another portion of the building were to be seen models of all kinds of machinery and engines. No practical science is taught. The school is apparently purely a trade school where young artisans of 18 to 22 years of age come to receive the technical training necessary for their trade, and for this purpose the school is admirably suited. To the educationist the lack of a "culture" basis in the instruction—the avowedly commercial character of the training—comes as a painful shock, but after all what is to be done in these latter days when apprentices are no more?

The school has about 300 pupils in the summer and double that number in the winter.

The commercial school at Cologne is at present in temporary buildings. The instruction is mainly in modern languages, but science and commercial subjects generally are also taught.

The director, Dr. Vogels, has been a master in English schools and speaks English with great fluency and ease.

We had several interesting conversations with him. "These commercial schools of ours," said he, "are more or less an experiment—we are groping somewhat in the dark, our sole guide in this as in so many other branches of education being Saxony. We wish to retain all the best, all the character-forming elements of the old classical training, but we want to do that with modern languages, and at the same time give our boys an education leading up to their future business in commerce. We lay special stress on modern languages, German, French, and English, and these we teach the boys to speak. We saturate them with the foreign spirit; we try to make them breathe, as it were, the foreign atmosphere, so that when they go abroad they will not feel lost, but, like a returned wanderer, will recognise landmarks and landscapes that they have long been familiar with.

"Later on, as our numbers grow, we shall have classes in Russian, Spanish, and Italian. Our numbers at present are 250, but I anticipate that our complement of 600 will very soon be reached in our new building."

That Dr. Vogels' anticipation will soon be realised we feel sure. We would here thank him deeply for his extreme courtesy and kindness in placing himself at our service, and in many ways making our stay at Cologne much more pleasant and profitable than it would otherwise have been.

There is much to admire in this system of German education much that may at first sight make an Englishman despondent, much at any rate to think about.

The beautiful symmetry of the structure, the lack of friction and of duplication of parts in the working of the machine, appeal to our sense of beauty and economy.

After all, however, nations do not work out their salvation in the same way.

It would be unwise, even were it possible, to transplant the German system to England. It would not suit us—it is not in harmony with British characteristics. The uniformity, the very perfection of the machine, would probably prejudicially affect some of those national characteristics of which we are most proud. For national systems of education, if in any sense flourishing, are indigenous to the soil. They have originated amongst the people, and they will grow only so long as their nutriment is derived from the same source.

Still, there are *some* things we can do, some objects we can attain (in our own particular way, perhaps) which have been attained

in Germany. It is true that organised primary education is over a century old in Germany and not thirty years old in England, and that allowing for this we do not compare unfavourably with them even in such direct educational products as regularity of attendance and public spirit. These will come to full fruition here as there; this is as certain as it is that the iron succeeded the stone age.

We would here sincerely thank all the teachers and officials we met. It is impossible to differentiate where all were equally courteous, kind, and hospitable.

R. E. HUGHES.

W. A. BEANLAND.

Swansea, October, 1899.

APPENDIX.

Comparisons of national systems of Education, even when the conditions are similar and the data unassailable by criticism, are often misleading and unsatisfactory.

We cannot, however, avoid, in our minds, at any rate, instituting a comparison between this system we have described and our own system at home. We would, however, lay no special stress on this comparison which has been made more for our own satisfaction than aught else. It may interest others. The figures are not above criticism, but they are the best we could obtain, and at any rate give some idea of the direction in which we are moving.

Wales, by its possession of an organised system of secondary education, offers a basis of comparison. But let us first note some of the factors to be considered in instituting such a comparison.

Whereas the system of organising secondary education found in Germany is nearly a century old, that of Wales is not yet ten years old.

Again, Wales is in the main a very poor agricultural country, where the principle of bringing the schools to the pupils has been deliberately adopted. Germany has many wealthy industrial districts, and rural secondary schools of the type known in Wales are unknown.

In the Kingdom of Prussia there is one school to every 45,767 of the population, in Wales one to every 22,330 of the population.

Again, Germany offers a very tempting premium to parents to send their boys to a secondary school, namely, the one year's exemption from compulsory military service, with its many attendant social privileges and advantages. Wales, on the other hand, can offer little but the philosopher's maxim of education for its own sake.

Moreover, it must not be forgotten that, in Germany, entrance to every form of professional calling is much more dependent than in this country on the candidate's producing evidence that he has passed through a specific course of secondary education.

Yet with these differences the numbers actually attending the public secondary schools in each country are as follows :—

—	Per 1,000 of population in Secondary Schools.
* Prussia [boys and girls]	7·8
Baden [boys only]	6·6
† Wales [boys and girls]	3·5

* This figure does not take into account all those at private secondary schools.

† This number includes only the pupils of schools administered under the Welsh Intermediate Education Act.

The Duchy of Baden, having a population about the same as Wales, has 60 secondary schools, whereas Wales has 88 intermediate schools. It is interesting to note the diversity of type found in these secondary schools of Baden.

Thus :—

Gymnasien and Realgymnasien } 22
Ober-Realschulen and Realschulen } 17
Höhere Bürgerschulen 14
Höhere Mädchenschulen 7*.

The following figures for the year 1898 have an interest to Welsh people.

County.	Number of pupils per 1,000 of the population receiving a Secondary Education.
Merioneth	9·3
Montgomeryshire	6·5
Cardiganshire	6·4
Carnarvonshire...	5·1
Pembrokeshire	5·0
Breconshire	4·4
Flintshire	4·3
Swansea...	4·2
Denbighshire	4·0
Anglesey	3·4

* As a matter of fact, the diversity is greater than is here indicated, for there are actually eight types of secondary schools included in the 60. See "The Higher Schools of Baden," by H. E. D. Hammond, Vol. III., Special Reports.

County of	Number of pupils per 1,000 of the population receiving a Secondary Education.
Carmarthenshire	3·3
Newport	3·3
Radnorshire	3·1
Glamorgan	2·9
Monmouthshire	1·6
Cardiff	1·4

For North Wales as a whole the figures are 5·1, and for South Wales 3·0.

The position of Cardiff is largely explained by the fact that the school for boys has only been commenced within the last eighteen months.

The figures are full of encouragement and promise. Would that the length of the school lives of the children compared equally satisfactorily. But whereas the minimum school life of the secondary pupil in Germany is six years, that of the Welsh secondary pupil is probably under three years. On the other hand, it must be stated that the educational ladder (in so far as that may be an ideal) is much more complete in Wales than it is in Germany.

The number of children who pass from the primary school to the secondary school in most parts of Germany is very small, particularly from the rural elementary schools.*

In the town primary schools it is true one often notices that the higher classes of the school have a larger proportion of girls and *poor* boys than the lower; for many of the secondary schools have no preparatory school attached, and hence draw their scholars from the lower classes of the primary school.

In Wales five out of every seven pupils in the secondary schools have proceeded from the primary schools, so that there can be no doubt that the educational ladder is much more complete in Wales than in Germany, and the opportunity for poor men's sons to reach high and honourable positions is certainly to-day greater in Wales than in Germany; and this is a characteristic of the system of which Wales may reasonably be proud.

* "The elementary and secondary schools [in Germany] are quite independent of each other . . . not one boy in ten thousand finds his way from the highest class of the elementary school into the Gymnasium.' Russell's "German Higher Schools," but compare "Problems in Prussian Secondary Education for Boys," by M. E. Sadler, Vol. III., Special Reports.

Finally, let us compare the secondary teachers' salaries in the kingdom of Bavaria and the Principality.*

WALES.		BAVARIA (Men only).			
—	Average Salary.	—	Initial Salary.	Increase every 5 years.	Maximum after 20 years.
Head Master ...	£272 10 10	Head or Director	£246	£18	£300
Head Mistress ...	£227 6 0	—	—	—	—
Assistant Master	£117 19 2	Assistant Master or Professor	£186	£18	£261
Assistant Mistress	£98 4 0	Higher School Teachers' Gymnasiallehrer	£114	£9	£177

It should be added that the Bavarian teacher is entitled to a pension of three-quarters of his salary after thirty years' service. After twenty years service the quinquennial increase is £9.

* From last report of Welsh Central Board and Appendix D. of Dr. Russell's "German Higher Schools."

THE CONTINUATION SCHOOLS IN BERLIN.

Amid the developments of civilisation among the nations the idea of the Continuation School is making its way with increasing strength. Urgently required by the conditions of social organisation, and in its turn acting on them, the new institution appears in many forms.

It claims its place side by side with the Church and the School.

Among the great number of those who enter early on the practical business of life, to whom the Primary School has only given a meagre education, there awakens, sooner or later, the desire to share in the stores of knowledge which human intelligence has won, in the insight into the working of the forces of nature, which it has acquired and applied to industry, in the arts which ennoble and support human action; in short, to participate in the spiritual treasures which are, as it were, the birthright of those born under a luckier star. This desire, which opens to the diligent the way to material prosperity and inner contentment, secures for society as a whole an important incentive to industrial progress, and turns the discontent of the slaves of machinery into the happiness of men conscious of their own success. The more the old order changes which held the workpeople in the narrow bonds of tradition, the more is customary prescription replaced by education and independent judgment, by insight into existing conditions, by special excellence within a particular sphere. For this reason, the Elementary School, however efficient and methodically correct its action be, cannot suffice for the happiness of the masses, nor for the preservation of society. The instruction must come into close contact with the life of the future citizen, and must be at the command of everyone desirous to learn, as long as he seeks it. But the seeker, born amid such conditions as these, needs guidance. Public libraries, newspapers, magazines help him the more he pushes forward, but without expert assistance he hardly finds the beginning of the path.

This is the object of the Continuation School.

The first step towards its realisation is taken when the need is recognised and the opportunity seized to learn and to teach whenever it offers. The movement is thus started.

The Continuation Schools of France are in this stage. "*L'École du soir est devenue l'école expérimentale,*" says M. Petit. Quite so; with enthusiasm the ground is prepared on which a permanent building can be erected, and if it is possible to arouse this enthusiasm again and again much can be done for the spread of culture; *e.g.*, lecture courses, such as are provided by the University Extension, or by the Humboldt Akademie, which has existed for many years in Berlin. The success of such efforts will be principally felt by the cultured classes, but it is not possible in this way

to secure a regular organisation providing for the wants of the masses of the people, particularly for the industrial workers.

There has long been, however, a conviction, though perhaps not shared by all classes, that a continued education is of especial benefit to such workers. The connection of the new organisation with the primary school was all the more natural when attention was directed more and more to those whose school attainments were insecure. But the form of the new institution, which was to include persons of very varying ages and from the most diverse callings, could not be determined out of hand. Not the least difficulty to be overcome was the attraction of young and old alike, and the separation of the eager candidates for knowledge into suitable divisions.

Three principles have contributed to the solution of this problem—free choice between the courses provided; free enjoyment of the preparatory courses without fee, and the selection of the teachers according to their attainments in a particular branch and their ability to adapt their instruction to the needs of the pupils or participants in the courses.

Before we show how these principles are the result of a long development, and how they have fashioned our Continuation Schools, we must say a few words about the compulsory Continuation Schools, which are now considered indispensable by many educationalists, warmly recommended by administrative authorities, and introduced by legislative action into certain States and towns. These schools are to be attended by such young people between the ages of fourteen and sixteen or fourteen and eighteen as cannot show that they have already attained the highest standard of the Continuation School, or that they are attending some other school of a similar or higher grade. Non-attendance is punishable by police regulations. The curriculum is prescribed and occasionally adapted to the occupations of the pupils, and generally assumes four to six hours of instruction a week. Special stress is laid upon the ethical influence on the pupil. This institution constitutes a prolongation of compulsory school attendance in two directions; it compels the pupils to learn and the parents (or principals, or employers) to give the apprentices (or employés) the necessary free time. In some cases, as in Bavaria, where compulsory school attendance only continues till the thirteenth year, such an institution may prove useful, and in cases where it is not possible to introduce the real Continuation School the obligatory Continuation School must be accepted as a makeshift. But it is not the ideal of the Continuation School —this is not the prolongation of compulsory attendance. A lasting effort towards further development can only be secured through increasing knowledge, through a growing independent exertion of the will, through the oft-repeated experience that knowledge and the ability to use it profit a man inwardly and materially, and thus the result is obtained that attendance at the Continuation School lasts far beyond the period of apprenticeship.

In what manner has this idea been realised by us? The experience of two previous attempts lay before us.

A hundred years ago an association began to provide instruction on Sunday afternoons for such apprentices as had not brought the requisite knowledge with them to the shop. It was a matter of reading, writing, and arithmetic. The regulations then existing permitted such apprentices to be compulsorily brought to the "Free Sunday Schools." When the power of the trade guilds was broken by the "Gewerbeordnung" of 1869 the principle of free choice gained due recognition. The association attempted to carry on its work under the new conditions, and, lo and behold! out of the schools for neglected apprentices grew up the Elementary Continuation School, with its varied curriculum. Some fifty years ago the Municipality took action. It founded three Continuation Schools, held in the rooms of three Elementary Schools on Sunday mornings between the hours of 8 a.m. and 1 p.m. A many-sided curriculum was planned—reading, writing, arithmetic, German composition and literature, modern languages, natural science, political and legal science, drawing, and book-keeping. The instruction was free to the apprentices; others were charged a fee of 50 pf. (6d.) a month. The right beginning was made, but at first the enterprise met with small success. The art of attracting and retaining free students was lacking, as well as the art of suitably arranging the curriculum and the time-table; and, finally, there was little demand for such schools among the general public.

A new plan was started in 1873. The Town Council instituted in certain higher schools, where success seemed probable, Continuation Schools for scholars who had passed through the top class of a Primary School. A large number of courses was provided; but the courses were to be held only in the winter, not in the summer. The young people who desired to remedy defects in their school education were left to the care of the association above mentioned. It was intended to create "Preparatory Schools," *i.e.*, such schools as should prepare their pupils for attendance at Continuation Schools. These institutions were to be connected with the Elementary Schools. Experience has shown that in this plan a principle sound in itself was surrounded by prejudices, which in a short time it dispelled.

The co-operation of the association and the Town Council was fruitful in results. Though the association did not command large means, the activity of its members did much to awaken sympathy, and the relations which it maintained with the guilds produced the Technical Continuation Schools, which were an offshoot from the "Preparatory Schools." The restriction of the instruction to the winter months proved unsuitable, for the institution thus retained the character of a makeshift—a nucleus of regular pupils could not be formed.

After a very few years, when drawing began to be greatly in request, the instruction was continued during the summer months. Other courses followed. The least satisfactory feature of the scheme was the division into Preparatory and Continuation

Schools. The Elementary School, which knew its former pupils and how to handle them, retained them; the Preparatory Schools became well-attended Continuation Schools.

A period of real progress followed. Special attention was paid to the instruction in drawing. It was sought by means of well-chosen teachers to bring it to a higher level. The State intervened with its assistance. It was felt to be a matter of importance to secure some institution which might control methods and serve as a nursery of suitable teachers. The Gewerbeschule at Hamburg, which under its Direktor O. Jessen had reached a high pitch of perfection, served as a model. The plan of founding a similar school at Berlin received the support of the State, both by money grants and still more through the steps taken to win Herr Jessen for Berlin. The institution was called the "Handwerkerschule" (School for Artisans). It had not been easy to secure the support of the parochial authorities. The majority of the Trade Guilds were opposed to it. They feared (and justly so) they would lose their leading position. Prejudices and apprehensions of over-education of the apprentices made themselves felt. When the question had been finally decided, the Handwerkerschule began its work in October, 1880; it served to set the standard for the drawing instruction in the Continuation Schools; it found efficient teachers among prominent industrialists and artists; and while the school itself increased in numbers beyond expectation, the Continuation Schools were also better attended. It retained, as did the Continuation Schools, the principle of non-compulsion, but amid this freedom it succeeded in maintaining strict order and discipline; and pedagogical tact, the first requisite in matters of discipline, has been so developed by the school (with the Continuation Schools following in its wake) that the pupils remain for many years true to these institutions, which are attended more and more by older pupils, assistants and master workmen. Attention must here be called to the fact that the "Handwerkerschule" had a predecessor in the educational section of the "Industrial Museum"—now the "Industrial Art Museum," which from the point of view of Art, was an institution superior to the Handwerkerschule, whose aims were more directly shaped towards practical ends. Founded by a private Association in 1867, and actively supported by the Crown Prince and Princess, this institution had at first (and indeed up to the time of its absorption by the State), but small means at its command. It received, however, in 1870 considerable support from the town, viz., the interest on a sum of 300,000 marks (£15,000) from a fund created by the municipality, in honour of the hundreth anniversary of the birthday of Friedrich Wilhelm III. At the present day this sum plays only a small part in the ample budget of the Royal Institute; but the real result then achieved, the co-operation of Municipality and the Industrial Museum, has remained to succour the Continuation Schools The mutual help of these two institutions, working together for the same ends has become an event of the greatest importance, for in the same manner as here Association and Municipality co-

operated, and later on State and Municipality, so for the whole of the wide and constantly increasing field of Continuation Schools the principle has been adopted and put into practice, of bringing together all disposable forces, intelligence, knowledge, powers of work, and financial means from Associations, Institutions, Trade Unions, and Private Persons, from Central and Local Authorities, from School and Academy, so that by means of Art and Learning and through increased energy the degree of culture and prosperiy might be raised and made secure. The more successful this movement is, the wider circles it embraces, and herein lies the secret of its success. Let us follow the Handwerkerschule a step further.

It was primarily intended to be a Drawing School for those engaged in different industries, and an institution teaching such subsidiary sciences as Mathematics, Physics, Chemistry; an evening and Sunday-school for apprentices and assistants; it soon realised that aim and had in its third year over 1,000 students. But it went far beyond these limits and as it tried to remedy deficiencies wherever they were felt, it became a nursery of "Fachschulen" and a type of institution, copied at Berlin and elsewhere, which, in keeping with the spirit of the age, calls into existence the beginnings of "Fachschulen," which in the near future will detach themselves from the mother stem as separate and fully-developed institutions.

Productive industry no longer commands the necessary leisure for the training of its workpeople and demands schools. Accordingly day classes were started. Decorators, modellers, carpenters filled the classes arranged for their benefit. To meet the wishes of the makers of instruments of precision, a more specialised organisation was given to a school for mechanics' assistants, who devote six months or a year exclusively to their studies. Electrical industries, with their great development, required, here as in other towns, engine fitters, and it was once more to the "Handwerkerschule" that the experts turned, and to which the resources of the Association of Electrical Engineers and the contributions of the leading firms and the municipality were directed for the organisation of an electro-technical class, now one of the features of the Institution. Among other specially developed courses are those for typewriters, to which is shortly to be added one for mercantile lithographers. The advantage of free development is here clearly shown, it enables older people to take part, who, while following their calling, are enabled to study its special processes.

The need of a second "Handwerkerschule" was soon felt. Housed temporarily in an old school building it was opened in October, 1892, and supported chiefly by the Municipality. At first it followed the plan of its predecessor. Until the new buildings now in the course of erection are completed, it must dispense with courses in chemistry and physics, but in addition to its day classes for decorators its special features are a day class for metal workers and a course for repoussé work, which have opened up fresh advantageous positions to its pupils.

While the "Handwerkerschulen" fully occupied and extended their sphere of influence, the Continuation School received a more compact organisation. Intended for those who have completed the tale of school attendance, and amid the occupations of their calling are seeking to render permanent and enlarge the results of their school education, either on their own initiative or on the recommendation of their teachers or employers. These schools have been distributed over Berlin in accordance with "the principles for the administration of the Continuation Schools in Berlin" laid down in 1881, so that anybody in need of them has only a moderate distance to go. The students, however, choose their school, and it is not seldom that they go long distances to attend the classes of a particularly appreciated teacher. The buildings of the elementary schools are becoming more suitable and roomier every year; in the evenings they are at the disposal of the Continuation Schools, which gradually remove to the newer buildings.

The number of Continuation Schools (at present twelve) is being slowly increased, and great weight is attached to a large attendance. For the greater the number of pupils the easier it is to form groups of about the same standard of attainment; at this point the liberty of movement for the members of the classes ceases, the student is free to choose his subject, German or Arithmetic, English or French, Drawing or Modelling, etc., but the decision as to the class within the branch which he has chosen, is left to the Director after appropriate examination.

At first the directors (head masters) were chosen among the head teachers of Elementary Schools; acquainted with the course of education, modes of thought and conditions of life of their pupils, and experienced in discipline, such men knew and know how to strike the right note that appeals to the feelings of the pupil Their enthusiasm for this new branch of their work has contributed largely to the success of the Continuation School. The optional attendance makes the existence of a class depend on a sufficiency of students, and with the class the fees of the director and teacher rise or fall. Thus the institution receives diligent scholars and efficient teachers, and the director is given a considerable voice in the selection of the latter. This arrangement, however, is not to be considered permanent; the simultaneous demands of a large Elementary School, and of a comprehensive Continuation School, soon wears down the strength of any man, and so recourse is had to the appointment of a director, whose chief work lies in the Continuation School. Such men are also able to keep in touch with the employers, and where necessary to control the regularity of attendance.

Each school has a governing body, consisting of men of very different callings, whose special office it is to see that the instruction is well adapted to the needs of the pupils, and supported by good equipment.

The direction of policy lies with the School Committee, whose executive officers are the local inspectors. The grants from local funds are determined by the communal authorities.

The branches of instruction are numerous. They include elementary subjects which are needed by those who have not realised the full aims of the Elementary School, as well as those branches of knowledge, skill, and the arts which the serious student requires in ordinary life. Fortunately the Continuation Schools have maintained till now such flexibility that curriculum and standard of instruction are not determined by State regulations, but by the needs of the students attending the classes. Since the time at their disposal is but short, as a rule, two hours in the evening of each weekday and a few hours, under certain conditions, on Sunday morning, and, as the students seldom take more than eight hours a week, this shortness of time creates a special difficulty. In many towns which have made the Continuation School obligatory, and can therefore only count on a few years of study, the authorities are content with two hours a week for each branch. We urge consecutive rather than simultaneous study of different branches, and therefore give four hours a week to German, to each modern language, and usually to drawing, while to other branches, as arithmetic, physics, chemistry, geometry, etc., two hours are assigned. The attendance at these classes often extends beyond the duration of the apprenticeship into the journeyman years; even master workmen, well on in years, take their part, according to the needs of their business or their inclinations and desires. Thus in the IX. Continuation School in the winter session 1898-99 there were eleven four-hour courses in German, partly graduated, partly alternative, and divided according to the age of the students. Special emphasis is laid upon orthography and correctness of expression; the students attach less importance to literary knowledge, but efforts are made to induce the pupils to read standard authors. A reading-book is used in the lowest classes only. It is intended that the literary treasures accessible in any public library shall be really utilised.

The characteristic feature in the history of this institution during the last few years has been the development of the instruction in drawing; the more artistically the teachers are trained the greater attention is paid to figure-drawing. The methods of instruction are undergoing a process of change; above all, the drawings are better, and the capacity of the pupils to reproduce the results of their observation with the pencil is increasing. After drawing modelling claims a large share of attention, and here, too, the progress has been from the decorative to the representation of plants, and then to figure modelling. Modelling from the nude, under the direction of capable artists, has penetrated even as far as the Continuation School. The study of French and English is increasing, and in the last few years shorthand and type-writing have found more favour with the students.

In 1892 and 1893 two forms of industrial instruction were detached from the general system of the Continuation Schools. They owe their peculiar organisation partly to the

conditions of the industries concerned, which are distributed over the whole town, partly to an addition to §120 of the State Regulation of Trade promulgated in 1891. These are the Gewerbesaal and the Carpenters' School; the former aims at providing instruction in theory and in drawing for apprentices, and journeymen employed in machine construction, in artistic smithies, and by art locksmiths. The latter undertakes the training of young carpenters, who again are divided into builders, carpenters, and upholsterers of various branches. For both trades drawing classes had become a necessity. At the Continuation Schools these classes had been entrusted to expert teachers, and were attended by a large number of pupils. But the courses lacked direction. It was not deemed advisable to create a single institution for each of these great trades. Each would have required a large building, and the distances would be too great to allow all the pupils to be collected at one centre. The courses, therefore, were held in Elementary Schools, which offered their rooms as drawing halls, and the general oversight in matters of discipline and order, left as before to the heads of the Continuation Schools, while a competent engineer was appointed "direktor" of the *Gewerbesaal*, and an artistic and technically trained carpenter to the Carpenters' School. The directors have to supervise the work of the various centres, to draw up a suitable curriculum, and to instruct the teachers. The Gewerbesaal had last winter over 2,000 pupils at ten centres, and the Carpenters' School with nine centres more than 850 pupils.

Courses for turners were also established in connexion with the latter school.

Just as these institutions have been evolved from the Continuation School and created technical schools of a special kind, so they bore within themselves the seeds of future development. Day classes were instituted; on a small scale in the Carpenters' School, but for the Gewerbesaal fully organised and with a yearly course and thirty-six hours of instruction a week. This is to provide young engineers and the members of kindred callings after the completion of their apprenticeship with the opportunity of extending their theoretical training, so that later on they may be successfully engaged as foremen fitters or engineers. Thus the necessity for a special building has arisen, which shall serve as a kind of central school for the local branches, which are still to continue, and which shall provide the necessary machines and rooms for drawing, chemistry, and physics. A plot of ground has been obtained, and the plans are in progress. In the same building a day class will also be held for the Carpenters' School and will be equipped with the requisite labour-saving machines. Mechanics and locksmiths, as well as carpenters, will thus have an opportunity of learning the uses of such machines in small shops, and as the network of the electrical cable extends over all the town, and power is easy to obtain, stimulus and the possibility of existence side by side with the large factories, is given to the small firms and to the single workman, by reason of efforts which demand individualised

attention either through skilfully devised construction or special artistic execution. But for those, too, engaged in large works, for foremen and fitters, we hope to arrange that even the elementary operations—forging, turning, filing, the operations in wood, the staining of wood, will be practised with the skill and exactness, which, through the system of piecework prevailing in the factory, are all too easily neglected.

The development of the two technical schools here described is only an example among many similar more or less mature formations. The technical schools for each trade have been gradually, and each in its own fashion, evolved from the Continuation Schools or formed on existing models. Only a few trades in Berlin are still without such a school. Various factors have contributed to the rapid spread of these institutions; above all the present conditions of apprenticeship, conditions which in the main are reproduced with certain modifications in the Empire at large, and which have led to legislative enactments, whose effects have yet to be tested, but whose objective is on the whole that of our "*Fachschulen.*"

Firstly. In consequence of the minute sub-divisions and extreme specialisation the apprentice only learns a small portion of his trade in the workshop. The tailor makes vests or trousers or coats, and the unhappy apprentice of a vest-tailor after completing his term is unable to work for trouser-makers. The saddler makes trunks, straps, and least of all saddles. The basket-maker makes coarse baskets, or else wicker furniture, or else fancy goods. The paper-hanger hangs wall papers, or does upholstery, or else makes curtains of all kinds; and in this way one might pass in review all trades with reference to their specialisation, and the danger is always great that the apprentice only learns part of his trade. Accordingly he ought to learn at school what he misses at the shop. The task is not easy, the process of learning demands the production of articles and this production makes competition for the artisan, which prejudices him against the school. The object is, therefore, to instil the rules which govern the processes, to practise manual operations without burdening the school with actual production.

Secondly. In certain trades there is as a general rule no workshop. The principal distributes the work to his assistants, who execute it at their own homes; he may do the cutting out or designing; the apprentice, however, receives practically no instruction, because the assistants, who are paid by the piece and not by the hour, cannot be troubled to look after him.

Thirdly. In the case of artisans, as carpenters, turners, wheelwrights, locksmiths—whose work is done at certain fixed places in the shop, as the carpenter's bench, the turning lathe, the vice, the aim of the employer is to use such places to their full extent and not to allow them to stand empty in working hours. Apprentices are expensive, because they do not help to earn the rent Respectable artisans of this class have little inclination to train apprentices. There is consequently considerable danger of a deficiency in the supply of skilled workers. To remedy this is

the object of the "Fachschule." The fundamental principle is that the apprentice instructed in the "Fachschule" in the methods of his craft and in the subsidiary sciences is thereby made fitter for the workshop and more valuable to his master.

The existing schools are almost all connected with the corresponding trade associations; these corporations, which possess certain rights under the *Gewerbeordnung*, and which are responsible for the training of the apprentices, contribute with very few exceptions to the support of these schools and depute master-workmen to serve on the governing bodies. The president of such a body is a representative of the *Gewerbe Deputation*—a municipal board, with whose assistance the finances of the school are administered. The town generally bears a considerable part of the cost, in particular it provides the buildings. The State, too, contributes towards several schools. While some schools have remained places of general instruction in drawing, arithmetic, or kindred subjects, others, as the schools for saddlers, bookbinders, upholsterers, tailors, shoemakers, wheelwrights, hairdressers, have become regular workshops. But it is never forgotten that this instructional workshop is not to replace, but only to supplement the real workshop. It is justly assumed that by accustoming the pupil to the actual methods of operation, the practical knowledge thus acquired, the skill in the economical use of material and of implements actually at hand form indispensable requirements in the education of the young artisan. As a rule the guilds require the apprentices to attend these schools, either during the whole or for a part of their apprenticeship. This regulation is gradually being made effective: the masters offer less opposition, and the more masters enter the guild, who have themselves experienced the benefit of the institution, the greater is the zeal of the guild for the school. Against this form of compulsion the opponents of the obligatory Continuation School can raise no objection. For these schools are governed each after its own manner, according to the needs of its own pupils; attendance being required by the same authority as is responsible for the apprenticeship finds its natural place in the regular round of daily life.

As to Commercial Continuation Schools there is still considerable conflict of opinion. It is clear that definite conclusions can only be drawn when the multiplicity of commercial operations and the diversity of training required have received their due meed of attention. All civilised countries are occupied with this question; we only discuss its bearings in Berlin.

At the beginning attention was directed to the case of boys who on leaving an Elementary School enter a retail house, or, in instances of more than average capacity, a bank. For such pupils the general Continuation School with its instruction in arithmetic book-keeping, and now typewriting and shorthand is sufficient. If the young man were desirous of further improvement, there are the classes in French and English. Therefore it has been a long time before special Continuation Schools for commercial pupils came into existence.

We must not, however, omit to mention that regular courses for older and better-prepared students in higher commercial subjects—as commercial geography, commercial law, bills of exchange, political economy—have been maintained for several years by the Merchants' Guild, and conducted by prominent teachers. At first the municipality contributed to their support by the loan of buildings, but the teachers were afterwards transferred to a room in the Exchange, and in reality form the staff of a Commercial High School on a small scale.

Others engaged in commercial pursuits have been educated at a Secondary School, (Gymnasium, Realgymnasium, Obercalschule, or Realschule,) though only a small minority reach a higher standard than that required for the one year's exemption from military service. (Since 1884 this goal has been rendered more accessible to boys from Elementary Schools by means of the Realschulen.) The degree of attainment, however, is so different from that of boys coming directly from the Elementary Schools, that for this reason alone a differentiation of the classes is a necessity. The "Einjährigen," as a rule, only take the really technical courses—commercial geography, book-keeping by double entry, etc. It is open to question whether matter intended for ex-scholars of Elementary Schools ought to be offered in the same dress to more intelligent pupils, as is the case in certain towns with obligatory Continuation Schools. It is a noteworthy fact that Continuation Schools connected with "Realschulen" have not received such support from former pupils of these schools as was hoped.

An association of merchants on the one hand and a governing body on the other found themselves compelled to establish a special commercial Continuation School. It was desired to detach the commercial pupils from the trade apprentices, and to emphasise the commercial element in the instruction; in the language courses, perhaps too much so, at the expense of a proper training in the foreign tongue, and with excessive attention to formularies. It must be admitted, however, that the age and intellectual attainments of the pupils were somewhat higher than those of the ordinary Continuation School pupil, and that in the curriculum were included such subjects as office-work, commercial geography, lessons on commercial products (Waarenkunde), bills of exchange. These private Continuation Schools, which were only aided by the municipality with the loan of buildings, had on their rolls last winter 2,584 pupils (including 1,453 apprentices), while the other Continuation Schools had 2,003 commercial pupils, of whom 1,572 were apprentices.

The general Continuation Schools still continue to provide for the wants of commercial students, and to extend their curriculum wherever advisable by the addition of commercial branches, *e.g.*, commercial geography, and foreign languages not hitherto taught, *e.g.*, Russian. But in view of the immense number of tasks that devolve upon the Continuation School it is greatly to be desired that the special and appropriate organisation of Commercial

Schools should be undertaken by other bodies. The matter is now in this favourable condition. Through the intervention of the Minister of Trade it has been possible to entrust the Commercial Schools to the control and support of the Court of the Merchants' Guild, so that the association referred to above only pays a small contribution, and the town provides the room. A special director to supervise all the schools has been chosen by the court, and efforts are now being made so to organise the schools that pupils of different degrees of attainment attend different courses of instruction, and a certain standard of knowledge is required on admission, so that less well prepared pupils remain in the general Continuation Schools. The Commercial Schools will gradually assume a more permanent shape, and begin to compete with similar schools in other towns. Thus here, too, the aim, towards which every effort is directed, has been attained, viz., that those interested in the trade shall actually bear the burden of the trade schools.

Various forces have combined to give to the Continuation Schools for girls and women their present shape. Their transitional character is more obvious than in the schools for boys, but they have passed beyond the stage of makeshifts to that of organised institutions. The first attempt had a distinct ethical purpose. Certain associations undertook to start a Continuation School for girls of the labouring classes. The monotonous, deadening work in the factory was to be counterbalanced by that of the evening and Sunday school; the classes in German, arithmetic, sewing, and dressmaking were to provide intellectual stimulus, moral elevation, and an increase in earning power. The municipality offered the necessary premises and noble-minded women sought to brighten the hours of rest by Sunday evening entertainments. This aim has been but slightly realised. Insuperable objections to Sunday instruction were raised by the "State Regulation of Trade" and by the Church authorities. It has ceased, and on workdays the girls are too tired to come to classes. The school, however, was not closed—nay, others were opened, but the social classes using them changed. The old principle, it is true, is still retained, and classes are held which girls following industrial occupations have the opportunity of attending, but by far the greater numbers of pupils come from families which keep their daughters at home for some years after the age of fourteen and occupy them with housework. Accordingly, these Girls' Continuation Schools are attended chiefly by girls who devote not indeed the whole of their time to self-improvement, but who are able in the daytime (particularly in the later afternoon) to enlarge their school attainments, and occupy themselves with such arts as sewing, needlework, cutting-out, ironing, etc., with such branches of knowledge as modern languages, arithmetic, book-keeping, geography, etc., which may prove useful in future employment or in the service of the family. The instruction in German, to which special weight is attached, serves to widen the point of view, to render stable moral principles, and is an introduction to the literature

and thought of the age. These schools enjoy great favour. Shorthand and type-writing have been introduced, and steps are being taken to include cookery. Gymnastics and singing are pursued with zeal as an important complement of education. Increasing attention is paid to drawing, and the schools are beginning to compete with the trade schools for women, which are supported by certain associations, as the Lette-Verein, the Heimatshaus für höhere Töchter. At the present time nine such schools are maintained by the municipality, and four by governing bodies in receipt of municipal subsidies as well as the loan of elementary school buildings.

H. BERTRAM.

Berlin,
December, 1899.

APPENDIX.

The following statistics have been taken from the "Übersicht über das Fortbildungsschulwesen und die gewerblichen Unterrichtsanstalten der stadt Berlin" prepared by Dr. Bertram for the School Committee of the Municipal Town Council. The figures refer to the Winter Session, 1899-1900.

A. Continuation Schools for Male Students.

(1) Municipal Institutes for Adults.

[These institutions are designed to meet the needs of persons engaged in business, who desire to acquire, complete or retain a degree of attainment equivalent to that of a Mittelschule.]

The subjects of instruction are: Mother Tongue, French, English, Commercial Arithmetic, Bookkeeping, Shorthand and Typewriting.

Number of institutions	4
Number of pupils	876

(2) Municipal Continuation Schools for Youths.

[The schools are intended to assist such boys as have entered on a practical calling immediately after leaving the Elementary School, to keep up their studies and to supplement them by such instruction and exercises as will increase their moral and professional efficiency.]

The branches of instruction include French, English, Physics, Chemistry, Algebra, Geometry, Bookkeeping, Shorthand and Typewriting; in some schools additional instruction in Commercial Correspondence, Bills of Exchange, etc., History, Geography, Drawing, Modelling, etc.

Number of institutions	12
Number of pupils	10,188

(3) The Continuation School of the Association of Artisans.

Number of pupils	454

(4) Commercial Continuation Schools, maintained by the Chamber of Commerce of Berlin.

Number of institutions	5
Number of pupils	2,215

B. Continuation Schools for Girls.

(1) Municipal Continuation Schools.

Number of institutions	9
Number of pupils	3,654

(2) Continuation Schools maintained by Associations and other Bodies

Number of institutions	6
Number of pupils	2,154

C. Institutions giving specialised Technical Instruction.

*(1) Municipal Higher Weaving School. Day Courses, 61 pupils.
Evening Courses, 179 „

§(2) Schools for Artisans (Handwerkerschulen), 2 schools with 3,786 entries.

		Pupils.
‡(3)	Building Schools	267
(4)	Gewerbesaal (10 local divisions)	2,265
(5)	Trade School for Bricklayers and Carpenters	265
(6)	„ „ „ Joiners (Tischlerschule)	1407
*(7)	„ „ „ Shoemakers	69
*(8)	„ „ „ Painters and Decorators	257
(9)	„ „ „ Saddlers	150
*(10)	„ „ „ Upholsterers	228
(11)	„ „ „ Blacksmiths	148
*(12)	„ „ „ Glaziers	70
*(13)	„ „ „ Chimney Sweeps	88
*(14)	„ „ „ Wheelwrights	63
*(15)	„ „ „ Basketmakers	20
†(16)	„ „ „ Bookbinders	86
†(17)	„ „ „ Gardeners	65
(18)	„ „ „ Printers	715
(19)	„ „ „ Painters	73
(20)	„ „ „ Tailors	142
(21)	„ „ „ Confectioners	101
†(22)	„ „ „ Potters	59
†(23)	„ „ „ Photographers	56
†(24)	„ „ „ Plumbers	61
(25)	„ „ „ Coopers	9
*(26)	„ „ „ Hairdressers	508

NOTE.—All these schools are under the immediate jurisdiction of the executive (*Magistrat*) of the Berlin Municipality, but they are not all of them directly administered by the Municipal Education Committee. This Committee has under its immediate charge the schools enumerated under A and B, and details as to the progress of these schools will be found in the annual report on the *Fortbildungsschulwesen* presented to the *Magistrat* by the *Schuldeputation*. The other schools are under the surveillance of the Municipal Committee on Trade, but this Committee avails itself of the educational experience of the expert advisers of the School Committee, one of whom has a seat on the board of management of each individual school. It will be noticed that it is only to schools of the latter class that State aid is granted, and this support is given through the Ministry of Trade, and not by the Education Department.—A. E. T.

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* Maintained conjointly by the State, Town, and Trade.
† „ „ „ the Town and the Trade.
‡ „ „ „ the State and the Town.
§ „ by the Town, but in receipt of a State Grant.

NOTE ON THE EARLIER HISTORY OF THE TECHNICAL HIGH SCHOOLS IN GERMANY.

It will probably be admitted that in the opinion of the majority of Germans the greatest achievement in the field of educational organisation in their country during the last century has been the creation of the Technical High School. This institution is, perhaps, more than any other, the child of the nineteenth century, for, born but little before it, it attained its full enfranchisement as the last sands of the old century were quickly running out. Thus the story of its progress lies within the compass of a hundred years. From its humble origin as a school which stood on the borderline of elementary education it has advanced in importance and in public esteem, till it has been recognised by the highest authorities in the land as the equal, and inevitably, to some extent, the rival, of the ancient University. Though sedulous watch was kept over the progress of events in other countries, it remains true that this development has been achieved by constant efforts towards improvement from within, aided by the wise and fostering care of rulers and statesmen, and by the unselfish devotion and broad conceptions* of those who were engaged in the work.

Not that the nineteenth century can claim the credit of having produced the idea of "technical instruction," for this, in some shape, has been always existent, and previous attempts to embody the idea in definite form were not unknown even in Germany. More than once had reformers tried to find some more suitable training than that of the classical schools for such pupils as were not intended for higher studies—a training which, going beyond the limits of the primary schools, would fit them better for the practical callings they were to follow. Such was the purpose of the school which Semler founded at Halle in 1705; this was the object of the "Realschule" which Pastor Hecker opened in Berlin in 1747; but after a lapse of time their course was changed.

In a higher grade this same need was also recognised. In 1745 the Collegium Carolinum was founded by Abbot Jerusalem at Brunswick. In the sketch of his project the founder expresses himself as follows:—"For innumerable years we men of learning

*Cf. Festgabe der Technischen Hochschule zu Karlsruhe, 1892, p.62. Redtenbacher's words as quoted by Dr. Keller: "Meine Bestrebungen als Lehrer richten sich nicht allein auf die wissenschaftliche Theorie der Maschine, mir liegt die Kultur des industriellen Publikums am Herzen. Wenn die Gebildeten den gegenwärtigen Zustand der Industriellen roh nennen, so haben sie recht; wenn aber jene glauben, es vertrage sich eine ächte, Bildung garnicht mit einer industriellen Thätigkeit, dann haben sie unrecht."

have been able to think that we alone are the pillars of human society, and that, outside our four faculties, health and reason are not to be found. We would retain honour enough if we were to cede one part, even the half of it, to our neighbours who live in other classes. Those who benefit the world through the wide dealings of commerce, who bring useful contrivances for the advantage of trade, for the improvement of natural products, for the increase of trade and agriculture, who follow mechanical arts—these form an equally important part of the community as the men of learning. And yet, amid all the sums of money devoted to schools and academies, they have received little or no attention."*

Accordingly the new institution contained a technical division. Some years later these new studies were brought into still closer relation with the old learning, when in the University of Göttingen, so often the pioneer of new developments, lectures were given by Professor Beckmann on technology and on the applications of chemistry to industry by Professor Ginelin.† But all these various attempts were the isolated efforts of individuals, and, though not without value, can hardly be said to have exercised a determinative influence on the developments of the coming century.

The new age brought new needs. The great discoveries by revolutionising the old methods of production entirely changed the relations of the countries of Europe to one another. So keenly was this felt in Germany that, even amid the storm and stress of the revolutionary wars, that country made some effort to adapt itself to the new conditions. Bavaria, it is said, readily sold the property of the confiscated monasteries to foreign industrialists, but reaped little profits from their efforts. When the removal of Napoleon to his lonely banishment at St. Helena afforded good grounds for the hopes of a lasting peace, industrial questions came everywhere to the front.

The cry for technical education came from two quarters—from the State itself, and from individuals who were anxious to improve the industries of their native country. The State itself was directly interested in many branches of industry: forestry, mining, lines of communication by land and water were under its immediate care, and for these purposes it required officers more thoroughly trained than heretofore, especially on the theoretical side. On the other hand, outside official circles, the industrial supremacy of England was an ever-present source of bitterness, and thinking men began to cast about for some means by which this state of dependence might be ended. But in this struggle England was not their only foe; they had to contend against prejudice and ignorance at home. Several writers complain with indignation of

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* Quoted in *E. Zöller:* Die Universitäten und die Technischen Hochschulen, p. 47.

† *Cf. Fischer, F.* Das Studium der technischen Chemie an den Universitäten and Technischen Hochschulen Deutschlands. Braunschweig, 1897.

the low esteem in which industrial pursuits were held. All crowded to the service of the State. Professor Finckh asserts that "every State official considers it his bounden duty to make all his sons follow in his steps, even if he had a dozen; thus many a one is lost to industry, but not gained for science."* However, they did not despair, and their chief remedy was education. The following passage from an anonymous writer in a periodical of the period is not devoid of interest. "All nations," he says, "are fighting for the profits of industry and trade, and through the action of some Governments this struggle has assumed the character of open war. Among the weapons which are irresistible in this economic warfare the spread of knowledge holds the first place, and all outlay for this purpose is a good investment, which *must* be remunerative. Money, as a rule, follows knowledge and avoids ignorance and stubborn stupidity.

"Another point to be considered is that all nations are not at the same level, but some are far in advance, and would, if they could, hinder the others from following them. This circumstance makes haste imperative; the distance must be reduced as quickly as possible. The nearer we are the less effective will be the efforts to hold us back. Chief among such nations is England, which is always presented to us for our example. She has not only far outrun us, but she avails herself of all her advantages not to allow us to follow her. In this matter all nations which are striving for a share in the products of industry and commerce are at war with England, and that country suffers continuously small but numerous defeats, which it cannot avert if we are but persistent. To attain this end the most requisite means is a wealth of knowledge. When knowledge is better distributed and wider spread than in England then we have nothing more to fear from her; then she is compelled against her will to open the sphere of activity over the greater part of the world for herself and for us, and involuntarily to accept the part of our commercial tout. Simply to envy England, merely to gaze at her with admiration, profits us nothing; 'tis but to sit idly by with folded hands and to befool ourselves with the delusion that it were useless to fight against this full-grown giant. We have all looked on idly while England gathered strength; she now enjoys the fruits of her labours, which will not be lessened or taste less sweet on account of our envy. Nothing remains for us but to win these fruits, and nothing can stop us as soon as we have learnt to sow the seed and reap the harvest. This seed is nothing more than the preparation of knowledge, and this we must scatter with no sparing hand."† Similarly, too, Nebenius, one of the most prominent statesmen of Baden, and to whose activity the *Zollverein* was largely due, when discussing the question whether

* *Prof. D. L. Finckh.* Über Gewerbeschulen und ihre Einrichtung in Württemberg. Stuttgart, 1829.

† Kunst-und Gewerbe Blatt. München, 1829, p. 507.

it was the duty of the State to provide opportunities for technical training for any but its own officials, says that the training of the higher productive classes is quite as important for the State as the high capacity of its technical officials.

Accordingly, with this object in view, the Polytechnische Schulen were founded. The schools had a double aim: they were intended to secure for science a foothold in the workshop, to assist with the light of reasoned theory the progress of arts and industry, till then fettered by many a prejudice and hindered through lack of knowledge; on the other hand, they sought to raise that part of the nation engaged in industry to such a level of culture as would secure to it its due measure of public respect.

The history of these institutions may roughly be said to fall into three periods:—(1) The period of foundation (1800–1835); (2) the period of adjustment (1835–1875); (3) the period of development. It is not intended to trace at length the development within each of these periods, but rather, by recalling some of the most striking changes which these institutions have known, to indicate roughly the point from which they started and the course which their development has followed.

In 1899 the Technical High School at Charlottenburg celebrated the centenary of its existence, but, taken strictly, this celebration had reference to but one portion of its work, for the Technical High School was the result of a fusion of two independent institutions—the Bauakademie and the Gewerbeschule. The former is the older, founded in 1799, mainly for purposes of State, though its aim is defined in the royal decree sanctioning its institution in the following terms:—"To train in theoretical and practical knowledge capable surveyors, architects, civil engineers, and masons, principally for the King's dominions, but foreigners may find admittance if no disadvantage accrue thereby to the King's subjects."*

In 1821 a complementary institution, which looked more to the needs of the industrial classes, was provided in the "Technische Schule" instituted on the initiative of Beuth. These two institutions continued to exist side by side till they were combined, in 1879, to form the Hochschule.

In the years which elapsed between the foundation of the "Bauakademie" and the "Technische Schule" two schools had been opened in the neighbouring kingdom of Austria, at Prague (1806) and Vienna (1815), which combined in greater or less degrees the aims of the two Berlin schools. The greater development of industry in Austria and Bohemia was probably the main cause of this combination.

Then there followed in quick succession a number of similar institutions in different parts of Germany. In 1822 a Realschule

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* *Nebenius, C. F.* Über technische Lehranstalten in ihrem zusammenhang mit dem gesammten Unterrichtswesen. Karlsruhe, 1833, p. 102.

was opened at Darmstadt, out of which sprang, at a later date, a Polytechnische Schule. In 1825, after the matter had been under consideration since 1808, it was finally decided to start a polytechnic school at Karlsruhe. Bavaria established three such schools at Munich (1827), at Nürnberg (1829), and at Augsburg (1833). The Technische Bildungsanstalt was opened at Dresden in 1828. Technical classes were added to the Realschule at Stuttgart in 1829, and Höhere Gewerbeschulen were established at Cassel (1830) and Hanover (1831). Finally, in 1835, the Collegium Carolinum, at Brunswick, was reorganised in such fashion as to bring it more into harmony with modern needs. Thus between the years 1821 and 1835 the foundations were laid of all those institutions, except that of Aachen (1870), which are now recognised as the Technical High Schools of Germany. Exception must be made in the case of Aachen, which, though it did not from the first receive the style and organisation of a high school, yet possessed an original equipment far different from that with which the earlier institutions had to be content. It was able, even amid the stress of war, to open its courses in 1870 with a staff of thirty-two teachers and no fewer than 223 students.

It must be borne in mind that these earlier institutions were far from being homogeneous in character or organisation, nor at that time was nomenclature any sure guide to the nature of the institution. The same name was given to institutions of very different types, and schools of approximately the same type are known under a variety of names. Thus the polytechnic school at Munich more nearly resembled the Höhere Gebwerbeschule at Hanover than the Polytechnisches Institut at Vienna.

The individual institutions show the same lack of a definite conception of their function. It was not realised at first that there are at least two distinct grades of technical instruction, which it is hardly possible to provide for within the same institution. At the "Technische Schule" at Berlin it was originally proposed to instruct manufacturers and those who were little more than artisans, but there was only one course of instruction. The Höhere Gewerbeschule at Hanover admitted students of very varied attainments, and with very different objects in view, and sought to meet these different needs by varying the length of the course, though the elementary instruction was given to all alike. Rektor Prechtl, the first head of the Vienna institute, in his opening address, urges the advantages of a scientific training. "It is true," he says, "that all processes in the world may be reduced to a few rules, by following which in a mechanical fashion one can, within a limited range, attain the desired end; but how far superior is he who does his work with scientific insight, to the man who is chained to a mechanical procedure." And this scientific training he would mete out in equal measure to manufacturers and foremen alike. Still more clearly is this absence of differentiation illustrated by a writer who, when commenting on the Vienna school, expresses the hope that what the Austrians seek

to secure by "intension," by one central institute, Bavaria may gain by a liberal extension of the instruction over many institutions, and the Bavarian institutions which the writer had in mind were the Sunday Schools.

After a few years the policy of "intension" was everywhere adopted. Separation was strongly urged by Nebenius,* who maintained that it was impossible to base the higher technical schools on the lower; there must, he argued, be two classes of schools—those which aim at imparting considerable skill in execution with a modicum of knowledge, and those which aim at giving more knowledge and less manual dexterity. In this contention he has the support of Professor Mitterer, who defined the functions of the schools of these two categories to be in the one case to illustrate science by practice, and in the other to illuminate practice with science.

It was the higher type of school that received the greater share of attention. Nebenius himself reorganised the school at Karlsruhe, being convinced that here the higher must precede the lower, if it were only for the purpose of securing a proper supply of teachers for the latter. It was inevitable that the gap between the two should grow greater, and few will support Rücklin in his criticism of the polytechnic school "for following the specialising tendency of the age, turning more and more away from the immediate regard to the needs of practical industrial life, and for devoting itself exclusively to the pursuit of science."†

But it is exactly this steady pursuit of science which has created the High Schools and given them their present position and influence. This was the aim which the leaders of the movement kept clearly in view during the middle third of the last century when the work of transformation was being gradually accomplished. With each extension of industry the scope of the schools was widened.

During the years that elapsed between the reorganisation of the Collegium Carolinum (1835) and the union of the Bauakademie and Gewerbeschule at Berlin to form the Technische Hochschule (1879), the polytechnic schools of Germany were so constantly changing and expanding that it is hardly possible to give a general account which would be applicable to all. But the progress, on the whole, was towards establishing an identity of type, and the ideal before them was the University. Despite all variety, however, there are certain common features distinguishing their earlier from their later development, and the chief of these may be considered under the following heads:— Administration, Organisation, Curriculum, Conditions of Admittance.

Administration.

Seeing that the polytechnic schools were in the majority of cases founded to meet the immediate needs of the State service, it is but

* *Nebenius.* Über technische Lehranstalten, p. 74.
† *Cf. Rücklin. F.* Die Volksgewerbeschule. Leipzig, 1868, p. 9.

natural that the connection between them and the administrative departments which they served was much closer than is usually the case with educational institutions, even though they are supported out of public funds. In many instances the officials of the department concerned not only exercised the oversight over the schools, but acted as teachers as well. Thus the officers of the Works Department at Berlin performed such service for the Bauakademie, and various members of the "Technische Deputation" discharged a similar function in the case of the Technische Schule. It was only about the middle of the century that the principle of appointing regular teachers for these schools was adopted by the Prussian authorities. In some cases where the school had its permanent director he was very often little more than the executive officer of the Ministry.

Where the school possessed a regular staff, certain powers of management were delegated to them. At Karlsruhe, at a very early date, a committee of the teachers was practically responsible for the organisation and discipline of the school. Over this committee the Director of the school presided, chosen annually by this committee from among the members of the staff. This arrangement dates from the reorganisation of the school by Nebenius in 1833. For some years this privilege of selecting their own head was suspended. It was restored in 1860, when the right of election was no longer confined to a committee, but to the whole body of regular professors.

This example at Karlsruhe has been followed by all the other Technical High Schools, with the single exception of Munich, which still retains the system of a permanent director.

It was but natural that as the work of these schools grew in importance a large measure of self-government should be granted to them, and it may be mentioned that this recognition of their educational status was generally accompanied by their transference from the care of the Office of Works to that of the Kultusministerium. At the present day each institution has its own constitution. In most cases the administration of general matters is entrusted to a small council, consisting of the Rektor, his predecessor, and a certain number of professors chosen by their colleagues as their representatives; in some cases the chairmen of the various "Fachabtheilungen" are added to this council.

Organisation.

At the beginning of the movement the organisation of the schools was the simplest possible. All the pupils followed the same course. The institution was in actual fact a school with a uniform curriculum. The age of the pupils—fifteen years of age being the average minimum required—demanded that the discipline should be that of the school as well. Attendance was strictly controlled, and a considerable amount of time was devoted to the practice of repetition of the lessons, under the superintendence of one

of the pupils. The advance of knowledge rendered specialisation imperative, and this was met by the introduction of the principle of the "Fachschule." Here, again, Karlsruhe, under the guidance of Nebenius, was the pioneer.* During the forties this principle gained a footing in all the polytechnic schools, but the lines of division were not always identical, and were not infrequently altered at the same school. Below these Fachschulen there was in every case a general class, where the new students were prepared for their higher work. This arrangement was essential in times when the modern secondary schools were not so highly developed as at the present day, and when the conditions of admission were less stringent. These preparatory classes have now disappeared, and the Technical High Schools are modelled on the lines of University organisation, the Fachabtheilungen corresponding to the faculties of the University. This change has necessitated the introduction of the principle of Lernfreiheit into the technical schools. Some of them possessed it from the first (*e.g.*, Hanover), and Nebenius discussed and rejected the idea in his work already referred to. He points out that in a technical training there is a necessary sequence of studies, and that, unless the preliminary branches are thoroughly mastered, the subsequent time is wasted; therefore he prefers a fixed course, and retains the principle of promotion. It is interesting to note that in recent years, though no official infringement has been made on this much-prized privilege, yet it has become the custom to issue with the sanction of authority certain recommended courses of study.†

Reference has already been made to the principle of Fachabtheilung, which has been introduced into all the Technical High Schools. Not even now are the lines of division exactly the same at all the schools: there is a department for shipbuilding at Berlin only: Darmstadt alone has a department for electrotechnics. The important point is the recognition of the fact that division does not mean isolation, but that, as the need arises, the students of one department can attend lectures on cognate subjects in another, and that the combination of these various departments to form a single institution benefits each branch of study there pursued.

Curriculum.

The curriculum was in the first years the same for all the pupils of the schools. The work was, in the main, theoretical. At Dresden and at the Technische Schule in Berlin a considerable proportion of the school hours was spent in the workshops attached

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* *Cf. Koristka, C.* Der h here polytechnische Unterricht in Deutschland, p. 25. "An der Karlsruher Schule kam zuerst in Deutschland das System der Fachschulen zu vollem Durchbruch."

† *Cf.* Programm der Königl. Technischen Hochschule zu Hannover, 1901-1902, p. 90. "Den Hörern bleibt die Wahl der Lehrfacher frei überlassen. Für ein geordnetes Studium empfiehlt sich aber die Beachtung der folgenden Studien-und Stunden-plane."

to these schools. But this practice was gradually abandoned even in these centres. It was felt that though such workshops might be extremely valuable at a time and in a country where industry was but little developed, yet where there was sufficient opportunity to gain experience in the regular industrial undertakings it was not the function of the school to attempt to supply that experience under conditions which must always be more or less artificial. A more potent reason for the closing of such workshops was the scant attendance. At Berlin, in 1860, there were only ten pupils, while the workshops, in which fourteen workmen were engaged, cost in annual maintenance over £1,300.*

The modern workshops attached to the Technical High Schools serve a very different purpose. They are not concerned with production, but illustrate the theoretical instruction. In this sense there has been a very large increase in the amount of time devoted to practical exercises, while the more formal lecture has been greatly curtailed.†

The changes with regard to subject matter of the instruction have been even greater. At the beginning the school curriculum contained but few branches, taught by comparatively few teachers; to-day the lecture list of the Technical High School at Hanover contains notices of 206 courses of lectures or practical exercises. This increase is, of course, due to the constant specialisation and sub-division of branches which were originally dealt with by one teacher in a single course of lectures. No doubt much of the specialisation has been an inevitable consequence of industrial progress, but it has been very materially aided and encouraged by the scientific interest which the teachers at these institutions took in their work, and by the ready support given to independent investigation.

Conditions of Admission.

Nothing perhaps discloses so readily at the first glance the altered position of these schools as a perusal of the different conditions laid down for admission at the time of their creation and at the present day. In 1799 the Bauakademie admitted pupils from the age of fourteen, provided they could write and spell, had some knowledge of the elements of Latin and French, and understood the first four rules of arithmetic. The Gewerbeschule admitted pupils between the ages of twelve and sixteen, and required no foreign language. At the Dresden Technische Bildungsanstalt it was only specified that the pupils should have attained the age of fourteen.‡

It was, however, soon found incompatible with the needs of the public service that the standard of admission should be fixed so low;

* *Cf.* Koristka. Der höhere polytechnische Unterricht, p. 65.

† *Cf.* Festschrift der technischen Hochschule zu Berlin, p. 182, containing tables showing for a series of years the relative proportion of time devoted to lectures and practical exercises in the various branches.

‡ Hüllse, Die technische Bildungsanstalt zu Dresden, 1854.

and, though the measure of the State's requirements has never been adopted as the entrance standard for all candidates, it has necessarily had very considerable influence in raising the general level of attainment.

As the polytechnics curtailed the length of their preparatory courses, the age of admission naturally rose, and about the middle of the century it was generally fixed at seventeen. At the present day there is no age limit, for, by reason of the great extension of the opportunities for suitable preparation, it is the custom to require evidence that the student has satisfactorily passed through a recognised course of study sufficient to enable him to attend the High School with profit. Entrance examinations are no longer imposed on native students, though they may be still demanded of foreigners. Up till 1870, or thereabouts, such examinations were regularly held at many of the polytechnic schools. Prussia was the earliest State to require a certificate of attendance at certain specified institutions. Under the present regulations, students at Prussian Technical High Schools must possess the leaving certificate of one of the three types of secondary schools with nine classes if he desires to become a candidate for State employment; otherwise he may be admitted if he has gained his promotion to the top class (Prima).

Thus out of the school which was primarily intended to minister to particular needs of a State Department, there has grown an institution which aims at satisfying the many-sided wants of modern industrial life in its highest range. The school which with its scanty buildings and small endowments, with its narrow and elementary curriculum sought to equip both leader and follower at the same time, has developed into an institution with ample buildings and large funds at its disposal, with a curriculum limited in its upper range only by the bounds of human knowledge, while the existence of a standardised system of secondary education has placed it in a position to require from its students on their entrance such a measure of general education as enables them to take up directly the work of their scientific training. The simple school, with its rigid discipline and paternal government, has become an institution of University rank, in full enjoyment of the traditional privileges of self-government.

A. E. TWENTYMAN.

November, 1901.

APPENDIX A.

TIME TABLES OF VARIOUS INSTITUTIONS AT DIFFERENT STAGES OF THEIR DEVELOPMENT.

(1) The Bauakademie at Berlin in 1799.

The records contain no account of the apportionment of the hours of study between the different branches, nor the distribution of the latter over the years of the course, which lasted from 1½ to 2½ years. Instruction was given in the following branches :—

1. Arithmetic, Algebra and Geometry.
2. Trigonometry and Solid Geometry.
3. Analytical Geometry.
4. Practical Geometry.
5. Statics and Hydrostatics.
6. Mechanics and Hydraulics.
7. Theory of Machines.
8. Building Construction
9. Architecture.
10. Land Surveying.
11. Roads, Bridges, Canals and Locks.
12. Riverwork and Harbours.
13. Machine Construction.
14. Physics, Chemistry, Mineralogy.
15. Plan-drawing.
16. Freehand Drawing and Ornament.
17. Architectural and Machine Drawing.
18. Modelling.

(2) The Technische Schule at Berlin in 1821.

Lower Class.

1. Geometry.
2. Arithmetic.
3. Physics and Chemistry.
4. Drawing.
5. Modelling.

Upper Class.

1. Mathematics (Algebra, Geometry : Plane and Solid ; Trigonometry ; Statics and Mechanics).
2. Chemistry.
3. Drawing (Freehand and Perspective).

(3) The Polytechnische Schule at Karlsruhe in 1826

The school embraced two divisions—(*a*) a general course ; (*b*) a mathematical ; and to these a commercial course was added. The following branches were taught :—

1. Religious Knowledge.
2. Mother Tongue.
3. History and Geography.
4. Mathematics.
5. Natural Science.
6. Chemistry.
7. Physics.
8. Drawing.
9. Architecture.
10. Theory of Machines.
11. Commercial Subjects.

(4) The Bauakademie at Berlin in 1849.

(a) For "Bauführer."

(A two years' course.)

1. Algebra.
2. Geometry and Spherical Trigonometry.
3. Solid Geometry and Projection.
4. Surveying.
5. Perspective.
6. Statics and Mechanics.
7. Physics and Chemistry.
8. Geognosy.
9. Theory of Construction.
10. Designs of Buildings.
11. Building Materials, Estimates, etc.
12. Country Architecture.
13. Drawing.
14. Roads and Waterworks.
15. Machine Construction.

(b) For Architects.

(One year's course.)

1. Chief Styles of Architecture.
2. Principles of Architecture.
3. Drawing and Designing.
4. Designs for Public Buildings.
5. Ornament.

(c) For Civil Engineers.

(Wege. v. Wasser. Baumeister.)

1. Analytical Dynamics.
2. Geodesy.
3. Waterworks.
4. Railways.
5. Theory of Machines and Machine Construction.

(5) The Gewerbeinstitut at Berlin in 1849.

I.—*General Course.*

1. Pure Mathematics.
2. Physics.
3. Chemistry.
4. Geometrical Drawing, Perspective and Machine Drawing.
5. Freehand and Architectural Drawing.

II.—*Special Courses.*

(a) For "Mechaniker."

1. Theory of Machines.
2. Railways and Iron Buildings.
3. Mechanical Technology.
4. Practical Work.

(b) For "Chemiker."

1. Applied Chemistry.
2. Analytical Chemistry.
3. Laboratory Work.
4. Outline of the Theory of Machines.

(c) For "Bauhandwerker."

1. Freehand and Architectural Drawing
2. Modelling in Clay.
3. Designs and Estimates.
4. Planning of Factories.
5. Outline of the Theory of Machines.
7. Models of Buildings in Plaster, Wood or Sto

(6) The Polytechnische Schule at Karlsruhe in 1847.

A.—General Mathematical Class. (Three years' course.)

———	I.	II.	III.
1. Religious Knowledge	2	2	2
2. History	4	–	–
3. Mother Tongue	2	2	2
4. French	6	3	3
5. English	–	–	3
6. Pure Mathematics	6	–	–
7. Geometry	4	–	–
8. Trigonometry	2	2	–
9. Geometry	8	8	4
10. Analytical Geometry	–	2	4
11. Practical "	–	4	4
12. Differential and Integral Calculi	–	4	5
13. Statics and Mechanics	–	5	5
14. Botany	–	4	–
15. Mineralogy and Geology	–	–	4
16. Physics	–	4	–
17. General Applied Chemistry	–	–	4
18. Freehand Drawing	4	2	4
19. Writing	1	1	–
20. Modelling	–	4	–
	39	47	44

B.—Special Schools.

I. Engineering.

———	I.	II.	III.
1. Ethics	3	–	–
2. English	3	–	–
3. Analytical Mathematics	3	–	–
4. Mechanics (Advanced)	3	–	–
5. Practical Geometry	4	–	–
6. Advanced Geodesy	–	–	3
7. Roads and Waterways	12	14	–
8. Machine Construction	12	12	–
9. Theory of Construction	4	–	–
10. Practical Surveying	–	8	8
11. Estimates	–	–	18
12. Designs for Machines	–	–	6
13. Architectural Technique	–	–	4
14. ———	–	2	–
15. Administration of Works	–	–	2
16. Landscape Drawing	4	4	–

B.—Special Schools—cont.

II. Building Schools.

——	I.	II.	III.	IV.
1. Mother Tongue (Literature) -	2	–	–	–
2. Ethics and Æsthetics - - -	–	2	3	–
3. Art Archæology - - -	–	–	–	3
4. History of Architecture - -	–	–	7	–
5. Descriptive Geometry - - -	–	–	–	2
6. Spherical Trigonometry and Analytical Geometry.	4	–	–	–
7. Differential and Integral Calculi	4	–	–	–
8. Mechanics and Hydraulics - -	6	–	–	–
9. Geometry - - - - - -	4	–	–	–
10. Theory of Machines - - -	–	6	–	–
11. Designs of Buildings - - -	–	7	5	5
12. Architectural Technique - -	–	3	–	–
13. Road and Waterways - - -	–	–	6	–
14. Mineralogy and Chemistry - -	–	–	–	8
15. Architectural and Ornamental Drawing.	5	5	5	5
16. Plan Drawing - - - -	5	5	6	–
17. Figure Drawing - - - -	–	4	–	–
18. Pictorial Perspective - - -	–	–	–	5
19. Modelling - - - - -	8	8	4	4

III. School of Forestry.

——	I.	II.	III.
1. Mother Tongue - - - -	2	–	–
2. Compendium of Law - - -	2	–	–
3. Mathematics - - - - -	4	4	–
4. Surveying - - - - -	–	4	–
5. Physics - - - - - -	4	–	–
6. General Applied Chemistry - -	–	4	–
7. Mineralogy - - - - -	–	3	–
8. Agricultural Chemistry - - -	–	–	3
9. Botany - - - - - -	4	4	–
10. Zoology - - - - -	4	–	–
11. Roads and Waterways - - -	–	2	–
12. Science of Forestry - - -	3	–	–
13. Outlines of Political Science - -	–	2	–
14. Theories of Climates and Soils -	–	2	–
15. Forestry and Peat Culture - -	–	6	–
16. —— - - - - -	–	5	–
17. Forest Administration - - -	–	–	2
18. Forest Regulations - - -	–	–	6
19. Equipment and Estimates - -	–	–	6
20. Forest and Sporting Laws - -	–	–	2
21. Practical Exercises - - -	–	–	–

B.—Special Schools—cont.

IV. "Höhere Gewerbeschule."

——		
1. History and Ethics	4	3
2. French and English	6	–
3. Zoology and Botany	7	–
4. Mineralogy	–	4
5. Applied Chemistry	4	2
6. Geometry	10	–
7. Mechanics and Statics	10	6
8. Machine Construction	12	12
9. Architecture	–	4
10. Roads and Waterways	–	8
11. Bookkeeping, etc.	2	–
12. Practical Work	–	–

V. Handels-(*A.*), and Postschule (*B.* and *C.*).

——	A.	B.	C.
1. Religious Knowledge	–	2	–
2. General and Commercial History	1	4	–
3. Ethics and Æsthetics	–	–	3
4. Geography and Mother Tongue	4	4	6
5. French and English	7	4	8
6. General and Commercial Arithmetic.	3	3	2
7. Physics and Mechanics	–	7	–
8. Theory of Commerce and Transport.	4	–	–
9. Outlines of Political Science	–	–	4
10. Bookkeeping and Correspondence	4	–	–
11. Commercial Contracts and "Knowledge of Goods."	2	–	3
12. Writing and Drawing	4	2	2

(7) The Gewerbeinstitut at Berlin in 1860.

I.—General Course.

	1st Half Year.	2nd Half Year.	3rd Half Year.
1. Algebra	6	–	–
2. Analytical Geometry	6	–	–
3. Differential and Integral Calculi	–	8	6
4 „ Geometry	4	8	6
5. Experimental Physics	4	4	–
6. Chemistry	6	6	–
7. Theory of Building	4	4	4
8. Analytical Statics and Mechanics	–	–	10
9. Drawing (Freehand and Architectural).	4	4	4
10. Modelling	6	6	–

II.—Special Courses.

(*a*) For "Mechaniker."

	4th Half Year.	5th Half Year.	6th Half Year.
1. Mathematical Physics	4	4	–
2. Stability of Buildings and Machines	6	–	–
3. Theory of Machines	–	4	4
4. Applied Hydraulics	–	4	–
5. Special Machines	–	4	4
6. General Construction of Machines	4	–	–
7. Designs for Machine Parts	10	–	–
8. Designs for Machines	–	2	4
9. Selected Machines for special purposes.	–	–	2
10. Mechanical Technology	–	6	4
11. „ „ (Practical)	–	4	–
12. Designs for Works and Factories	–	8	14
13. Building Construction	–	4	4
14. Machine Drawing	6	–	–

II.—Special Courses.—cont.

(*b*) For Students of Chemistry.

—	4th Half Year.	5th Half Year.	6th Half Year.
1. Inorganic Chemistry	4	4	–
2. Organic Chemistry	4	4	–
3. Mineralogy	4	4	–
4. Geognosy	–	–	3
5. Metallurgical Chemistry	–	3	–
6. Applied Chemistry	4	4	–
7. Designs for Chemical Works	–	4	4
8. Theory of Special Machines	–	4	4
9. Practical Work in Inorganic Chemistry.	35	8	40
10. Practical Work in Organic Chemistry.	35	8	40

(*c*) For Students of Shipbuilding.

The course is the same as that for "Mechaniker," except that Nos. 7, 9, 12, 13 are omitted, and replaced by 1. Shipbuilding, 4 hours each half-year; 2. Designs for ship's engines, 4 hours in the last year; 3. Designs and estimates for ships and shipyards, 6 to 12 hours each half-year.

(8) The Polytechnische Schule at Karlsruhe in 1860.

A.—Mathematical Course.

First Year.

1. Religious Knowledge	2
2. Arithmetic and Algebra	5
3. Geometry	3
4. Plane Trigonometry	2
5. Descriptive Geometry	–
6. Mother Tongue	6
7. French	6
8. Freehand Drawing	4
9. Writing	1

Second Year.

1. Differential and Integral Calculi.	5
2. Plane and Spherical Trigonometry.	2
3. Analytical Geometry	2
4. Descriptive Geometry	6
5. Elementary Mechanics	5
6. Experimental Physics	4
7. Mother Tongue	2
8. French	3
9. Freehand Drawing	2
13. Modelling	4

Third Year.

1. Differential and Integral Calculi	4
2. Analytical Solid Geometry	2
3. Analytical Mechanics	3
4. Descriptive Geometry	4
5. Land Surveying	4
6. Physics (Advanced)	3
7. Chemistry	4
8. Mineralogy and Geognosy	4
9. German Literature	2
10. French	3
11. English	3
12. Freehand Drawing	4
13. Modelling	4

B.—Special Courses.

I. Engineering.

First Year.		Second Year.	
1. Differential Equations	2*	1. Roads and Waterways (II.)	4
2. Quadratics	1*	2. Exercises in Construction	6
3. Geodesey	2*	3. Railway Construction	2*
4. Applied Mechanics	2	4. Exercises in Construction	4*
5. Roads and Waterways (I.)	4	5. Machine Construction (II.)	10
6. Exercises in Construction	6	6. Mathematical Physics	2*
7. Machine Construction (I.)	12	7. Lectures on Legal Topics	2*
8. Theory of Practical Construction.	5	8. Freehand and Landscape Drawing.	4
9. Freehand and Landscape Drawing.	4		
10. Modelling in Wood and Stone.			

Note.—Courses marked with an asterisk last but half a year.

For those preparing themselves for the State Service there is an additional course extending over six months.

II. The Building Schools.

First Year.		Second Year.	
1. Chemistry	4	1. Machine Construction	6
2. Mineralogy and Geognosy	4	2. Roads and Waterways (I.)	4
3. Building Materials	2*	3. Technical Side of Architecture (I.)	3
4 Descriptive Geometry	4	4. Building Estimates	2*
5. Statics and Stability	2	5. Elevations	5
6. Elevations and Plans	10	6. Designing of Simple Plans	5
7. Landscape Drawing	4	7. Landscape Drawing	5
8. Ornamental Drawing	5	8. Freehand and Ornamental Drawing.	9
9. Modelling in Plaster and Wood.	8	9. Modelling	8

Third Year.		Fourth Year.	
1. Technical Side of Architecture (II.)	3	1. Lectures on Law	2
2. Advanced Architecture (I.)	3	2. Advanced Architecture	3
3. History of Classical Architecture.	2	3. History of Mediæval Architecture.	2
4. Designs for Dwelling Houses.	6–9	4. Designs for larger Public Buildings.	6–9
5. Exercises on Older Styles of Architecture.	2–3	5. Exercises in Mediæval Styles of Buildings.	2–3
6. Perspective	2–3	6. Perspective	2–3
7. Ornamental Drawing	2–3	7. Ornamental Drawing and Designing.	2–3
8. Figure Drawing	4	8. Figure Drawing	4
9. Freehand Drawing	4	9. Freehand Drawing	4
10. Modelling	4	10. Modelling from Original designs.	4

Students may join the first year's class after passing through the second class of the mathematical course.

B.—Special Courses—cont.

III. Mechanical Engineering.

First Year.		Second Year.	
1. Theory of Machines	6	1. Theory of Machines and Technical Mechanics.	6
2. Machine Construction	6	2. Machine Construction	6
3. Experimental Physics	4	3. Mathematical Physics	2*
4. Applied Mechanics	3	4. Advanced Physics	3
5. Practical Geometry	4	5. Practical "	6
6. Applied Chemistry	3	6. Chemistry	4
7. Geognosy (useful minerals)	2*	7. " Recapitulation	2*
8. Roads and Waterways (I.)	4	8. Roads and Waterways (II.)	4
9. Freehand Drawing	4	9. Metallurgy	2
10. Practical Work in Mechanical Workshops.	–	10. Freehand Drawing	4
		11. Practical Work in Mechanical Workshops.	–

* For one half-year only.

Students may join the first year's class after passing through the second class of the mathematical course.

IV. Applied Chemistry.

There is no fixed yearly curriculum. The students choose their subjects according to their needs, combining them in a course of two or more years as circumstances require.

General Chemistry (I.)	4	Mineralogy	3*
General Chemistry (II.)	1	Geognosy	3*
General Chemistry Recapitulation.	2*	Geognosy of Useful Minerals	2*
Analytical Chemistry	2*	Practical Mineralogy	2
Practical Chemistry	–*	" Crystalography	2*
Agricultural Chemistry	2	" Geometry	4
Applied Chemistry	3	Machine Construction	6
Metallurgy	1	Elementary Mechanics	3
Experimental Physics	4	Mechanics of Transport	2
Advanced Physics	3	Bookkeeping, etc.	6
Botany and Zoology	8	Elementary Lectures on Roads and Waterways.	2*

* For one half-year only.

Students can enter on the course in applied chemistry after passing through the second class of the mathematical course.

There are other courses for forestry and for the commercial school and Postschule. These time tables are not added here

APPENDIX B.

The Present Lecture-List of the Technical High School at Berlin.

For purposes of comparison some few details are added here of the lecture courses provided at the Technical High School at Charlottenburg during the winter-session now in progress.

As at present organised this high school comprises six departments, each of which has its own staff of salaried teachers and of *Privat-dozenten* (*i.e.*, lecturers who receive a certain portion of the fees paid by the students for attendance at their lectures). The salaried teachers are divided into two classes, viz., those that hold regular professorships, and those that occupy a position personal to themselves. The number of teachers of these various categories on the staff of each department is as follows :—

	Regular Professors.	Salaried Teachers.	Privat-Dozenten.
I. Department of Architecture - -	9	11	16
II. „ „ Civil Engineering -	6	4	5
III. „ „ Mechanical Engineering.	8	8	7
IV. „ „ Naval Architecture and Shipbuilding.	1	4	1
V. „ „ Chemistry and Metallurgy.	7	8	12
VI. „ „ General Science -	7	9	17

There are also, in addition to these teachers, several demonstrators who assist the professors in the laboratory instruction.

Each department is by no means a self-sufficing professional school; the students enrolled at the matriculation in one department have full liberty to attend the lectures in any other; and it may be said that the sixth department, offering mainly instruction in the fundamental sciences (*e.g.*, Mathematics and Physics), is the common property of the other five. In the official time-tables issued by the authorities of the Technical High School at the end of the enumeration of the lectures given by the staff of one department, there is appended a list of lectures from other departments suited to the purposes of the students of that division.

(*a*) The Department of Architecture offers sixty-five courses of lectures or practical exercises; twenty-four of these are given by the Privat-dozenten. The list includes courses on the History of Art, Architecture and Ornament, on Building Construction, on Designing of Buildings in different materials and for various purposes; on the preparations of estimates, etc.

(*b*) The Department of Civil Engineering provides courses in Mechanics, Railway Construction, Bridges, Canals and Harbours, Hydraulics, Drainage and Land Surveying. In all thirty-four courses are given, eight by Privat-dozenten.

(*c*) The Department of Mechanical Engineering gives instruction in the following branches, Kinematics, Machine Construction, Mechanical Technology, Designs for machines, Power machines driven by water, steam,

or electricity, Electrotechnics, Electro-mechanics, Electrical works and railway works (especially engines and carriages). The full list includes fifty-four courses, sixteen delivered by Privat-dozenten.

(*d*) In the Department of Naval Architecture and Shipbuilding courses are provided in the Theory of Shipbuilding, Designing of warships, Boilers, Machine Construction, Practical shipbuilding, Classification of ships. Nineteen courses are delivered, for one of which the single Privat-dozent of this department is responsible.

(*e*) The Department of Chemistry and Metallurgy offers fifty-one courses, thirteen of which are in the hands of Privat-dozenten. The chief courses deal with Chemistry (organic and inorganic), Physical Chemistry, Electro-chemistry, Technological Chemistry, Crystalography, Metallurgy, Foundry work, Cements, Botany, Chemistry of plants and foods.

(*f*) The Department of General Science offers fifty-eight courses, twenty-eight being delivered by Privat-dozenten. This department includes lecture courses not only on Mathematics, Physics, and kindred subjects, but on Literature, French, English, Italian, Law, and Political Science.

In each department there are courses on other subjects beyond those mentioned here, but it is hoped sufficient indication has been given of the nature of the work undertaken by each.

RECENT DEVELOPMENTS IN HIGHER COMMERCIAL EDUCATION IN GERMANY.

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RECENT DEVELOPMENTS IN HIGHER COMMERCIAL EDUCATION IN GERMANY.

I.

How to provide the most practically useful and intellectually stimulating kind of higher commerical education is a question which year by year grows in practical importance and international significance. Practical business men are far from being agreed on the subject. Many of them shrug their shoulders when the question is raised, or regard with a sort of sceptical indifference any practical attempts to solve it. The old ways, they say, will last their time, and who can forecast the future? Others openly deride any scheme for the theoretical training of men of business, and maintain that commercial leaders, like poets, are born, not made. But a small, though active, minority are convinced that something can be done, and must be done, to provide for young men, who have completed their secondary education and intend to devote themselves to a commercial life, a course of higher commercial education, which shall be equal in quality, comparable in difficulty, but different in content to the "honours" course at a university or at a technical college of university rank. This little band (for in no country is it at present more than a little band), which is resolutely bent on solving the problem of the higher commercial education, has long been fighting an uphill battle. Nothing in the world is more stubbornly conservative than an ingrained educational tradition. And, at first sight, the whole weight of commercial, as well as of educational, tradition seems to be against those who hold that the highest type of commercial education is fast becoming essential to the maintenance of far-reaching, successful commercial operations. "Have there not been," it is asked, "hundreds of great commercial leaders, before colleges for higher commercial education were so much as thought of? Does not your advocacy of advanced commercial instruction hint at some disparagement of the intellectual competence of those men of business, who are now at the head of famous firms, but have made their way in the world with very little in the shape of theoretical training to help them? Will not the old methods, which made Great Britain the leading commercial power of the world, suffice to train up generation after generation of men able to maintain her greatness? What need is there for these new-fangled schemes of lectures and classes on commercial science? Can any young beginner hope to learn as much from professorial instruction as from the sterner discipline of practical life? It is in the workshop, not in the lecture room, that a man must learn his trade."

To such arguments as these the advocate of higher commercial education is content to make a temperate reply. He bases his whole case on the argument that the conditions under which commerce on a great scale is now carried on, have so changed that the older type of higher commercial education is fast becoming obsolete, and therefore needs to be replaced by some effective substitute. "Higher commercial education is no novelty," he says in reply to his opponent; "there has always been such a thing, but it has been imparted privately by the head of the firm to his junior, or by some senior assistant to the new-comer—informally imparted, no doubt, as occasion offered, but imparted none the less effectively, and with due admixture of practical illustration and practical experience. Under favourable conditions the plan worked excellently. Nothing could be more educative, from a commercial point of view, than the living tradition of a great house of business, supplemented by oral explanations and by confidential hints from the experienced heads of the firm. Our higher commercial education has been *implicit* in the practical training thus given by one generation of commercial leaders to its successors. Many of our great commercial men learnt their business, as in the old days a Japanese painter or draughtsman learnt his craft, by living in close companionship with one who was himself a master of the art which the pupil desired to learn. But the conditions are changing. Business has to be done at a much higher pressure than heretofore. There is far less time at the disposal of the heads of a firm, or of the heads of departments, in which to give all-round instruction to young beginners, however promising they may be. The old leisurely ways have been left far behind, and the beginner has much less chance of learning his business thoroughly and from every point of view than had his predecessors a generation and more ago. Again, in every great house of business there is more sub-division of labour than there used to be. Such sub-division has become necessary in consequence of the immense scale on which commercial operations have to be carried on in order to yield an adequate profit under the stress of intense competition. But what a beginner needs is not only to learn one part of a business, or a number of its separate parts in succession, but to gain a general view of the business as a whole, and a firm grasp of the details in their relation to the whole of which they form a part. It is just this general view of the whole business which a specially intelligent pupil most needs to get. His future value will largely depend on his clearly grasping the relative importance of each part of the business, and on his gaining insight into the reasons why one branch of it, though still apparently prosperous, is really threatened with decline, and why some other branch, though still apparently unprogressive, is really full of rich promise for the future. The men, however, who could teach him all this (assuming, that is, that they wanted to teach it) are constantly occupied by the multitudinous and insistent claims of modern business, and are rarely at

leisure to 'coach' a new beginner in such a way as to enable him quickly to form an intelligent judgment on the larger issues at stake. Something therefore (they argue) must be done to replace by some other means the kind of higher commercial education which is fast disappearing with the old *régime*. Nothing in the shape of lectures and classes can ever fully replace the advantages of *the old system at its best.* But the old system was not always at its best, and is rapidly becoming obsolete. It is incumbent on us, therefore, to do all that we possibly can to devise an effective substitute for the older kind of higher commercial education by means of some combination of theoretical instruction and of practical apprenticeship. Moreover, in another way still, the conditions have changed. The heads of a great commercial house to-day have perforce to deal with a far wider range of facts, and with a more complicated variety of facts, than had their predecessors a generation ago. Nor are the factors in the problem as stable as they were. Much more has to be known about many more things, and in consequence of incessant changes in economic relationships, etc., this widely-extended knowledge has, in turn, much more frequently to be revised and renewed than was the case thirty years ago. Hence it follows that the beginner needs to start with a much broader basis of exact and sifted knowledge than sufficed for his father's needs. And it is the province of highly skilled professors of commercial science to furnish the beginner with the foundations and outlines of this knowledge in such a way as to start him on the right lines upon which he can build up a great store of information for himself. "But, when all is said and done," continue the advocates of higher commercial education, "we do not mean to imply that attendance at courses of lectures on commercial subjects can in itself create a successful man of business. Theory can never be a substitute for practice, but practice means much more to a man who has a firm grasp of theory. We do not propose that colleges for higher commercial education should supersede the painstaking study of the practical facts of business life, seen under business conditions, and, so to speak, 'under fire' from competing firms. We believe that the higher commercial education which might be given in lecture rooms or in other courses of instruction should be regarded as a supplement to practical training, not as a substitute for it: as an ingredient, not as an alternative. Nor do we think that colleges or professors of commercial science can create genius, or the sure instinct for business possibilities which is the native gift of a successful business man. Imagination, constructive ability, resourcefulness, sagacity, self-control, patience, courage, trustworthiness, instinctive perception of essential points, and that creative power which is the artistic gift of a great man of business—these are qualities of mind and character which, though all of them may be developed (or injured) by education, are fundamentally gifts of nature—inborn, inherited, and developed under favouring circumstances or by the pressure of necessity. Colleges for higher

commercial education cannot make up for defects of natural ability, for a bad home training in early childhood, or for the loss of a thorough and inspiring secondary education. They are no substitutes for perseverance and hard work. But they can (we maintain) crown, and crown effectively, the good training which has gone before. They can prepare a youth to gain more advantage from the practical experience which will follow. They can help those who are keen to help themselves. They can give business instincts and business faculties a better chance for all-round development. In a few cases they may even so kindle in a young man's mind an enthusiasm for the more scientific side of business as to reveal, in what would otherwise have passed as mere talent, the presence of that infinitely more valuable thing—commercial genius. Therefore (they conclude) let us leave nothing undone which will stimulate, more widely than is at present the case, an intellectual as well as a practical interest in the problems of modern trade."

In what form, and in what combination of theoretical instruction and of practical apprenticeship, higher commercial education will be best imparted, according to the varied needs of the different categories of modern trade, time and patient trial alone can show. But the friends of higher commercial training have at any rate the satisfaction of knowing that their ideas are going to be thoroughly sifted and tested in practice. For some time there have been in existence Higher Schools of Commerce at Antwerp and Neuchâtel, in Vienna, and in Venice and at Tokyo, not to speak of the similar institutions in Paris and several of the great French cities, where however the critics say that the popularity of the Écoles Supérieures de Commerce is due, not so much to a widespread desire for higher commercial training, as to the hope of winning a diploma which will excuse the holder from two out of three years' military service.* Not less instructive (in some ways more instructive) has been the experience gained by the École Libre des Sciences Politiques in Paris, now in its 31st year of usefulness, and by the London School of Economics and Political Science, which has already done so much to promote the systematic study of problems of public administration, political science, and practical economics.† In the same category with the two last-named institutions may be mentioned the Wharton School of Finance and Political Economy, a former director of which (Professor E. J. James, now head of the College of Commerce and Political Science at the University of Chicago) has done much to press the problem of higher commercial education on the attention of business men and of University authorities on both sides of the Atlantic. But, as their names imply, the Paris École Libre des Sciences Politiques and the London School of Political Science, as well as the Wharton

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* *See* report on "Higher Commercial Education at Antwerp, Leipzig, Paris, and Havre," in Vol. 3 of this series.

† For an account of the work of this school (now a school of the University of London), *see* Vol. 2 of this series.

School of Finance, make it only part of their work to provide courses specifically intended for the training of commercial men. Much that the latter would find useful, and even indispensable, is found in their programmes; but on the other hand they do not offer, and cannot be expected to offer, certain things (*e.g.*, a commercial museum, a library of commercial magazines and works of reference, instruction in foreign languages, in the nature of commercial commodities, in technological subjects in their bearing on commerce, and in accounts and office management) which would be required in the case of an institution devoted to the higher commercial education of business men. Yet the work which has been accomplished by these schools of political science has served to prove, both directly and indirectly, what varied opportunities of usefulness and what fruitful fields of inquiry lie before the High Schools of Commerce in the immediate future.*

Still more significant is the movement of University opinion in the direction of establishing new "Faculties of Commerce," or departments which provide special training for men intending to devote themselves to business life. In America, where commercial education of a lower grade has long had a firm footing, several Universities have recently attacked the problem of higher commercial training, with the animation and adventurous energy which so honourably distinguish American education at the present time.† In England, three of our six Universities are now, in one way or another, concerned in the attempt which is being made to devise the right course of higher commercial education. The Belgian Government has decreed the creation of Commercial Faculties at the Universities of Ghent and Liège.‡

Finally, in Germany, where for some time there was a good deal of hesitation on the subject, no less than four Higher Schools of Commerce have been opened during the last four years. This singularly rapid development is of special interest to many educational students, and the aim of this report is to give a brief account of what has recently been done in this new province of higher education in Germany. There is perhaps no word, in the

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* It may conveniently be mentioned here that the London Chamber of Commerce (10, Eastcheap, E.C.) has made a beginning with commercial lectures and classes in Michaelmas Term, 1901. The subjects taught are:—(1) Geography, with special reference to commerce; (2) Banking and Currency; (3) Commercial and Industrial Law; (4) Commercial History, and the elements of Political Economy; (5) the Machinery of Business; (6) Spanish; (7) Italian; (8) French; (9) German. All the lectures are announced to be given in the evening, mostly from 6.30–7.30 p.m.

† An account of what is being done will be found in Mr. Hartog's Report on "Commercial Education in America," in Vol. 10 of this series.

‡ *Times*, September 26th, 1901. In an interesting article on Higher Commercial Education, the writer argues strongly in favour of regarding the Universities and University Colleges of our great cities and towns as "the proper theatre for experiment in higher commercial education in this country."

long technical vocabulary of German Education, the right use of which is more jealously guarded than that of Hochschule. The term is always held to connote an institution worthy to be recognised as being of University rank. No charlatan would dare to use the word unworthily. The academic and cultivated sections of German society would censure and disclaim any group of teachers who might presume to debase the educational currency by attaching the title of Hochschule to an institution unqualified to give thorough and scientifically accurate instruction of a University type in all the subjects mentioned in its programme.

The standard of public opinion on the subject of syllabuses and educational nomenclature varies widely in different countries. In America, for example, the mind of the reader seems to glow with satisfaction when he peruses educational announcements, the "magnificent distances" of which must (as he is well aware) be of the nature of an optical delusion. The American syllabus seems often to be regarded as a work of art in itself, apart from its relation to actual achievement. It is often an ideal ground-plan of studies, without being at the same time a virtual promise to render the exact services which it so attractively portrays. In England, much that is educationally best refrains from ordinary advertisement to a degree which often makes it difficult for the outsider to realise how much excellence is hidden from his gaze, while other educational work, though far from being as good as it should be, is allowed to make up for gaps in actual performance by a generous measure of public self-appreciation. In Germany a University or Public School advertises itself in a plain, decent, business-like way, and then proceeds to perform, to the best of its power, exactly what it has undertaken to do.

In Germany, again, educational terms have, as a rule, as fixed a value as have the pieces in chess. The term Hochschule implies a high standard of educational effort. It is significant, therefore, as showing with what thoroughness the Germans have recently addressed themselves to the task of higher commercial education, that of the four new institutions, to which reference has been made above, one is a new department of an already celebrated Technical Hochschule; two are new foundations actually bearing the name of Hochschulen; while the fourth, though known by the title of Academy, is avowedly a Hochschule in all but name.

II

The first Commercial Hochschule in the German Empire was opened in Leipzig at Easter, 1898.* At Michaelmas in the same year a department of Commercial Science (Kursus für Handels-

* The regulations of this Hochschule, and an account of the circumstances attending its foundation, will be found in Vol. 3 of this series, pp. 571-576.

wissenschaften) was established as part of the Royal Technical High School at Aachen. On May 1, 1901, a Municipal Commercial High School (Städtische Handels-Hochschule) was opened at Cologne. And on October 21, 1901, the new "Academy for Social and Commercial Science" (Akademie für Sozial-und Handelswissenschaften) began its first session at Frankfort-on-the-Main.

I will now proceed to describe the constitution, aims, programmes, teaching staff, rules of admission, and diplomas, of these four institutions, and to state, so far as figures are already available, the statistics of the attendance at them, and the fees charged to students.

i. Constitution.

(*a*) The Handels-Hochschule at Leipzig (office at Löhrstrasse 3/5[1]) was founded by the Leipzig Chamber of Commerce, in agreement with the Academic Senate of the University of Leipzig. The new institution also enjoyed the co-operation of the Handels-Lehranstalt (Commercial Educational Institution) previously existing in Leipzig. When the scheme for establishing the Handels-Hochschule was in embryo, the Rector of the University of Leipzig and several of the University professors were consulted by the promoters on the subject of the connection of the new High School with the University. It was decided that the Handels-Hochschule should not become an organic part of the University, but that the University should co-operate in its work, be represented on its governing body and admit the students of the Handels-Hochschule to certain privileges in regard to attendance at lectures at the University—privileges which are reciprocated by the Handels-Hochschule in the case of matriculated students of the University. But it is expressly laid down by the Statutes of the Handels-Hochschule that no one may be enrolled, as a matriculated student, on the books both of the University and of the Commercial High School at the same time. Thus, the University and the Handels-Hochschule are in intimate alliance, but not in organic union. The Senate of the Commercial High School at Leipzig consists of eleven members, viz., three representatives of the Leipzig Chamber of Commerce (one of these being President of the Chamber and *ex-officio* chairman of the Senate of the Handels-Hochschule); one representative of the Saxon Government; one representative of the City of Leipzig; three representatives of the University of Leipzig, these being Professors nominated for the purpose by the Academic Senate; two members of the staff of the Leipzig Handels-Lehranstalt appointed by the Committee of that institution; and, finally, the Director of Studies of the Handels-Hochschule (Professor Dr. Raydt). Thus the governing body of the Commercial High School includes representatives of academic learning, of the central Government, of the municipal administration, of commercial interests, and (what matters not least to the welfare and wise development of the young institution) of the teaching staff.

The Leipzig Handels-Hochschule is for the present, *i.e.*, so long as it has no independent constitution, under the supervision of the Saxon Ministry of the Interior.

The financial responsibility for the Handels-Hochschule is for the present borne by the Leipzig Chamber of Commerce.

(*b*) The Royal Technical High School at Aachen (of which the Commercial Classes form a new Department) is one of those great institutions for giving the highest type of technological instruction, which are in effect the Technological Universities of Germany, and which have done so much (deriving, as they do, thoroughly well prepared students from an intellectually efficient system of secondary schools) to further the interests of German trade and industry. Nothing gives the reader a better idea of what is meant by modern science in the service of practical life than a perusal of the programmes of these Technical High Schools, with their wealth of well-arranged courses of instruction of first-rate quality, designed to equip the student with the knowledge which he needs for an intellectual grip of the scientific problems of modern industry. In the Technical High School at Aachen, for example (which is, in point of intellectual standards, as much a University as are the Universities of Giessen, Marburg, or Kiel), there are thirty-three full professors, sixteen lecturers (Docenten and Privatdocenten), and twenty-six assistants, as well as three gentlemen (two of them medical men in Aachen and one a leading man of business) who give occasional instruction, besides the large secretarial staff, the library officials, and the minor assistants in the laboratories, etc. The Hochschule has, of course, a great variety of collections, laboratories, workshops, etc., in connection with it. These are forty-seven in number. The general aim of the Aachen Technical High School is two-fold: (1) to provide higher education of a type which will qualify students to render expert service in industrial callings or in technical branches of the State, or municipal administration; and (2) to promote the study and extension of the arts and sciences which fall within the province of higher technological education. This High School is divided into five departments: (1) Architecture; (2) Civil Engineering; (3) Mechanical Engineering; (4) Mining Engineering, with Smelting, together with Chemistry and Electro-chemistry; (5) a general department, specially devoted to Mathematics and Physical Science. To these five departments has been added the Department of Commercial Science. The institution, as a whole, is under the general supervision of the Prussian Education Department, and this supervisory power is exercised, so far as it has to be exerted on the spot, through the Royal Regierungs-Präsident as Deputy of the Government, not (as is the case with the secondary schools) through the Provinzial-Schul-Kollegium. The internal affairs of the Hochschule are in the hands of a Rector, Pro-rector, and Senate of seven members, one of the latter being Pro-rector (1901–1902).

(c) The Municipal High School of Commerce (städtische Handels-Hochschule) in Cologne is situated in a new building in the Hansa-Ring. It prides itself, perhaps a little too jubilantly, on being "the first independent Commercial High School in Germany." As the institution is not yet six months old, it is impossible to say at present whether its particular type of organisation is for practical purposes better or worse than those adopted respectively by its elder sisters at Leipzig and Aachen. Moreover, as will be seen below, its constitution is only "independent" in the sense of being devoid of any formal alliance or connection with a University, as is the case at Leipzig; or of organic union with an existing Hochschule, as is the case at Aachen. There are many who will hold that "independence" of this kind may be somewhat dearly bought, and that, in a country where academic and intellectual influences are feebler than is the case in all educational circles in Germany, such "independence" might end, if not in intellectual anæmia, at any rate in a somewhat enfeebling isolation.

The existence of the municipal Handels-Hochschule is due to the far-seeing and public-spirited liberality of the late Geheimrat Gustav von Mevissen, a citizen o. Cologne, who so long ago as 1879 gave a considerable sum of money towards the establishment in Cologne of a Commercial High School, and at his death, in 1899, bequeathed a large additional legacy for the same purpose. Himself engaged in commerce, Gustav von Mevissen was profoundly impressed by the increasing need for higher commercial education. He further placed on record his conviction that there was urgent need in the city of Cologne for some centre of higher intellectual life and effort in order to prevent one-sided money-making tendencies from playing too dominant a part in the communal life of the metropolis of Rhineland. For these reasons, it was his desire to see established in Cologne a Commercial High School of University rank, which would, with the Friedrich-Wilhelm University of Bonn on the one hand, and the Polytechnic High School at Aachen on the other hand, complete the circle of academic institutions in that important region of the German Empire.* Those views were expressed by him twenty years before his death. He lived to see the movement for higher commercial education wax strong in Germany. The Leipzig Handels-Hochschule and the Aachen courses in Commercial Science were opened in the year before his death. The decision of the Technical High School at Aachen to take part in the provision of higher commercial training must have gratified him as an evidence of the growing recognition of the need for the type of education which he had so long advocated; but, on the other hand, must have to some extent disappointed his hope that Bonn, Aachen, and Cologne would each contribute a characteristic part to the three-sided academic ideal of Rhineland.

* *See* "Reden bei der Feier der Eröffnung der Städtischen Handels Hochschule in Köln," p. 10. (Berlin: Julius Springer, 1901.)

Dr. von Mevissen's legacy for the Handels-Hochschule seems to have amounted to more than £37,500, and the City Council of Cologne unanimously voted a further contribution of £13,000, in order that the new institution might be established without further delay. The professors at the University of Bonn rendered willing and valued service in the formation of the plans for the new High School of Commerce.* The City Council of Cologne has unanimously undertaken the financial liability for its maintenance, and has provided accommodation for the lectures and classes. Moreover, the Cologne Chamber of Commerce has voted the sum of £500 a year for five years, in order to provide a Commercial Museum in connection with the Hochschule. Finally, the family and representatives of the late Gustav von Mevissen have cordially furthered the scheme, and their assistance in removing obstacles to the fulfilment of their late relative's desire was very warmly acknowledged by the Oberbürgermeister at the opening ceremony.

These co-operating factors are all duly represented on the governing body of the Handels-Hochschule. The Oberbürgermeister of the city (or his representative) is chairman of the committee of management. The latter further includes (1) one representative appointed by the Prussian Minister for Trade and Industry, in conjunction with the Minister for Public Instruction (an ingenious device for meeting the difficulty of dual central control); (2) the Director of Studies, Professor Dr. Hermann Schumacher; (3) three members of the City Council (the three representatives first chosen are respectively a merchant, an architect, and a solicitor); (4) three members of the teaching staff of the Hochschule; (5) two members of the Cologne Chamber of Commerce; and (6) one member nominated by Frau Geheimrat von Mevissen, a right conferred upon her in recognition of her and her late husband's liberality to the school.

(d) The Academy for Social and Commercial Sciences at Frankfort on the Main (Akademie für Sozial-und Handels-Wissenschaften; Secretary's office, Alte Rothhofstrasse 1) has been established by the City Council of Frankfort, and the Institute for the Common Weal (Institut für Gemeinwohl) with the co-operation of the Frankfort Chamber of Commerce and the Polytechnic Society. The undertaking has received the sanction of three departments of the Prussian Government—viz., the Education Department, the Ministry of Trade and Industry, and the Home Office

* Professor Dr. Gothein of the University of Bonn, who will also lecture on two evenings a week at the Handels-Hochschule at Cologne, was specially and warmly thanked by the Oberbürgermeister of Cologne at the opening ceremony for his untiring aid, and has received by command of the Emperor, in recognition of his services, the third class of the Royal Order of the Crown. This distinction (with two others) was announced at the opening ceremony by the Prussian Minister for Trade and Industry, who was present and spoke at the meeting.

I have not yet seen the detailed constitution of the new Academy, but it may be presumed that the governing body will comprise representatives of the Frankfort City Council, of the Central Authority, of the Institute for the Common Weal, of the Chamber of Commerce, of the Polytechnic Society, and of the Teaching Staff.

The foregoing paragraphs suggest one or two general observations. (1) The Germans rarely, if ever, forget to put representatives of the teaching body on the committees of management of their higher educational institutions. They appreciate the value of expert knowledge, and their confidence is, on the whole, not misplaced. They hold that it is unpractical to attempt to shape the course of a great educational establishment without habitually consulting the officers charged with the actual navigation of the ship. (2) The great German municipalities regard money which is spent on first-rate (not on rubbishy) education as one of the most remunerative of investments. Yet Germans are as reluctant as Englishmen to raise the rates. We can hardly calculate the value of the scientific guidance given to the affairs of a great German municipality by the highly trained and highly paid official (the Oberbürgermeister) who, with similarly skilled lieutenants, presides over the business of the City Council. Analogies between English and German municipalities, which neglect to make full allowance for this characteristic difference between the two systems, are so loosely drawn as to be of small practical use. We in England keep our experts in a subordinate position, letting their advice filter into municipal policy as best it may. In Germany the expert is placed without disguise in the highest position of responsible command. This difference strikes deep into principles of local government. As our communal life grows more complex and city problems more pressing, it may be predicted that something more like the German system will have to be adopted in England, in order to combine efficiency of communal organisation with due regard to municipal thrift. (3) The German municipal authorities have one special advantage over the English in any question related to higher education. They can appeal to a public, through which a perception of what is meant by secondary and higher education of first-rate *intellectual* quality is much more widely diffused than is the case in England. Many more Germans of the middle class have been more thoroughly well taught at school than Englishmen of a corresponding position in society. It is the lack of good secondary education which is hampering us so seriously, and rendering so much of our other educational expenditure less profitable than might otherwise be the case. (4) It is notice-

able that the German City Council, knowing that it holds the purse-strings, does not stickle for an actual majority of votes on the committees of management of these institutions. Thus, all the different interests and types of experience can be represented on these committees, without making the latter unwieldy in point of size. This is an important point. A small committee has generally a much stronger sense of individual responsibility and of pride in its work than a large committee. Its policy is generally more continuous, because there is less risk of shifting and more or less accidental majorities arriving at varying decisions at successive meetings. (5) The Director of Studies has a position of considerable importance on these committees of management. He is the vice-gerent of the governing body; is responsible to them for the general management of the institution; is chairman of the board of studies; and (a point which materially affects his influence with his colleagues on the teaching staff) is qualified to take an important part in the tuition, so far as his onerous administrative duties will allow.

ii. Aims.

It is characteristic of German methods that the statutes of an educational institution generally contain, near their beginning, a clear statement of its aims. In England, educational aims are less frequently formulated in so precise a manner, and sometimes remain obscure.

(*a*) The aims of the Leipzig Handels-Hochschule are defined as follows:—

1. To give a thorough general and commercial education to young men who intend to devote themselves to a commercial career, including banking, book-selling.

2. To provide those who intend to be teachers in commerci schools with an opportunity of prolonging the special prepa tion, theoretical and practical, necessary for their professional efficiency.

3. Further, to afford to practical business people and to persons belonging to allied callings the means of enlarging their knowledge of particular branches of commercial science and commercial practice.

(*b*) The aims of the commercial Science Department of the Technical High School at Aachen are stated as follows:—

To provide a form of academic training in the commercial sciences which cannot be obtained either at the universities, on the one hand, or at a strictly commercial High School on the other.

(1) Primarily, the course is intended for those who will, in the future, become the principals of great commercial firms or industrial establishments; but also (2) for business men who wish to prepare themselves for the conduct of the economic affairs of the nation in commercial associations; (3) for those who will in the future become the officials of commercial associations, *e.g.*, of chambers of commerce; and (4) for university trained teachers who wish subsequently to attach themselves to the teaching staff of an institution for commercial education.

(*c*) The aims of the Handels-Hochschule at Cologne are evidently modelled on those of the corresponding institution at Leipzig. They are as follows:—

1. To give a thorough general and commercial education to young men who intend to devote themselves to a commercial career.

2. To provide those who intend to be teachers in commercial schools with an opportunity of prolonging the special preparation, theoretical and practical, necessary to their practical efficiency as teachers of commercial subjects.

3. To offer to the junior officials in the civil and consular services, to the secretaries of Chambers of Commerce, etc., an opportunity for acquiring technical knowledge of commercial subjects.

4. To furnish men who are already in business, as well as those engaged in allied callings, with an opportunity for extending their knowledge of particular branches of commercial science.

(*d*) The aims of the Academy of Social and Commercial Sciences at Frankfort are as follows:—

1. To provide the higher officials of the civil and municipal services, magistrates, solicitors, and other members of the learned professions, with an opportunity for the deeper and wider study of social and economic problems, and so to promote insight into the significance of economic activity; and at the same time to furnish commercial information and general instructions on subjects connected with the carrying on of industrial operations.

2. To equip persons connected with industry and commerce with that range of information on social and commercial sciences which is required for the full discharge of the duties attached to leading positions in the business world.

3. To give an opportunity to other persons (and particularly to those who already are, or have been, engaged in business) to widen and deepen their knowledge of economic, social, and commercial questions. And the academy has also special regard to the needs of teachers who wish to improve their qualifications for giving instruction in trade schools, technical schools, and continuation classes of various kinds.

iii. Programmes.

(*a*) The programme of the Leipzig Handels-Hochschule for the Winter Semester 1901–02 offers (1) thirty-five courses of instruction on topics closely related to commercial and economic science; (2) instruction in six foreign languages, viz., English, French, Italian, Spanish, Russian, and Chinese; (3) sixteen additional courses, to which the attention of students is directed with a view to their supplementing their strictly technical studies by others of a more general character; (4) a Seminary for teachers of commercial subjects; and (5) instruction in two systems of shorthand (Gabelsberger and Stolze-Schrey) and in typewriting.

Of the courses mentioned under (1), (2), and (3) above, forty-two are provided at the university. This shows how predominant a place is held by academic teachers in the work of the Leipzig higher commercial school. In fact a close examination of the details of the programme suggests the doubt whether an intelligent young man, intending to prepare himself for commercial pursuits, would not do better to matriculate at the University of Leipzig, instead of at the Handels-Hochschule, and take his Ph.D. degree at the end of his course; selecting the latter, in view of his special commercial need, and availing himself of the privilege to attend the more technical courses of instruction provided by the Handels-Hochschule. But no confident answer could be given to this question without taking into account (1) the influences of the atmosphere of the University society as compared with those of the more specifically Commercial High School; (2) the present and future comparative value, in commercial circles, of the Ph.D. and of the Commercial Certificate of the High School respectively; and (3) the advantage of the experienced direction and oversight which would be given by the staff of the Handels-Hochschule, and on which matriculated students of the latter would naturally have the prior claim.

The following are the chief courses of instruction provided for students at the Leipzig Handels-Hochschule in the Winter Semester 1901–02. Those marked with an asterisk are given at the University by members of the University staff, and are, therefore, available to matriculated students of the Commercial High School.

(*a*) *Economics and Statistics.*

* Introduction to Economic Theory.
* Social Economics.
* Economic Problems of the present day (including the agrarian crisis, the movement in the Middle Classes, Commercial Treaties, and Colonial Problems).
* Commercial and Industrial History from the 15th Century to the present time.
* Introduction to the study of Statistics.
* History, Theory and Practice of Statistics.

* Principles of Public Finance.
* German Colonial Policy.

(β) *Law.*

* General introduction to jurisprudence (for non-jurists).
* Commercial Law (various courses).
* Law of Contract.
* Law regulating employment.
* Maritime Law.
* International Law.
* Law regulating Insurance for sickness, accident, and old age.

(γ) *Geography, Study of Articles of Commerce, Technology, etc.*

* Commercial Geography.
* The Turkish Empire.
* The Caribbean Sea and the West Indies.
* Indo-China, the peoples of.
* Ethnography.
* Scientific basis on which to ground a critical estimate of the characteristics of different nations.
* Chemistry in its application to industry and commerce.
* Tropical agriculture with special reference to the German Colonies.

(δ) *Languages.*

English.
French.
Italian.
Spanish.
* Russian (and also special instruction in the Handels-Hochschule).
* Chinese.

(ε) *Commercial Subjects.*

Book-keeping (various courses, adjusted to the needs of different commercial callings).
Commercial Correspondence (various courses, adjusted to the needs of different commercial callings).
Commercial Arithmetic (various courses, adjusted to the needs of different commercial callings).
Commercial Methods, Office Organisation, and the Machinery of Business (practical work in "Bureau").
Shorthand.
Typewriting.

(ζ) *General Courses.*

* History of Europe (various courses).
* History of Germany (various courses).
* History of German Culture and Literature (various courses).
* History and present condition of the Turkish Empire.

(*η*) *Courses specially meant for those intending to qualify as teachers.*

* History of Education in the Nineteenth Century.
* Prussian School Reforms in 1901.
* School Hygiene.
* Practice in Elocution and Voice-production.

(*b*) The Commercial Department of the Royal Technical High School at Aachen offers forty-three courses of instruction in the academic year 1901–02, and among them are the following:—

(*α*) *Economics and Statistics.*

General Economics (two courses).
Economic History.
Commercial Geography (two courses).
Principles of Banking and Currency.
Principles of Public Finance.
Economics of Railway Administration.
Questions of Social Legislation.
Trade and Commercial policy—(i.) Home, (ii.) Foreign.
Introduction to the study of Statistics.
Theory and Practice of Statistics.
Actuarial Science.
Public Health Administration and Industrial Hygiene.
Tariff Legislation.
Comparative study of Currencies, weights and measures, etc., of different countries.

(*β*) *Law.*

Elements of Civil Law.
Law of Contracts.
Laws regulating industrial operations.
Commercial Law. Law of Partnership. Company Law.
Law of Bankruptcy.
Building Laws.
German and other laws regulating insurance.

(*γ*) *Study of Articles of Commerce, Technology, etc.*

Study of various articles of commerce:—

Among those included in the list are Timbers, India Rubber, Resin, Hides, Wool, Horns, Feathers, Ivory, Whalebone, Cochineal, Meat, Fat, Honey, Wax. The course of instruction comprises (1) description of the organisms from which the articles in question are taken; (2) exact description of the different varieties; (3) adulteration and imitation; (4) geographical distribution of the articles in question; (5) chief markets; (6) statistical summary of supply and demand.

Study of mineral substances used in trade and commerce.
Encyclopædic course on Experimental Physics :—

Sound, Light, Heat, Mechanics, Electricity, Magnetism.

Encyclopædic course on Mechanical Engineering :—

Simple parts of machines, Turbines, Windmills, Steam Engines, Gas Engines, Measurement of power.

Chemistry in application to trade and industry :—

Topics dealt with include Gums, Sugar, Brewing, Vinegar making, Glass manufacture, Gas manufacture, Paraffin, Soap, Dyeing.

Practical Chemistry.
Mechanics (two courses).
Building Construction.
Planning and Equipment of Factories.
Telegraphs and Telephones, with practical instruction.
Art applied to industrial and commercial purposes :—

Designing of Placards, Wrappers, etc.
Artistic packing of goods.
Arrangement of goods in shop windows.
Artistic arrangement of Exhibits.

(γ) *Languages.*

English (part of the course includes a description of English political and social life, and an account of any current English questions of interest to German men of business).
French.
Spanish.

(δ) *Commercial Subjects.*

Commercial Arithmetic.
Commercial methods, office organisation and the machinery of business (three courses).
Shorthand.

(c) The Municipal High School of Commerce at Cologne offers the following courses of instruction for the Winter Semester 1901–1902.

(a) *Economics and Statistics.*

Introduction to Economics.
Postulates of Economic Science.
Economic Development of Germany in the Nineteenth Century.
Commercial History.
Social Problems.
The latest problems in commercial policy.
Economic service of railroads: Tariffs and railway rates.
Introduction to the science of statistics.

(β) *Law.*

Civil Law (two courses).
Commercial Law (two courses).
Law of Contracts.
Company Law.
Law of Bankruptcy.
Patent Law.
Law of Insurance.

(γ) *Geography, study of Articles of Commerce, Technology, etc.*

Commercial Geography.
Study of articles of commerce (animal, vegetable, mineral).
Mechanics, with special reference to industrial needs.
Electrotechnics.
Organic Chemistry.
Metals.
Heating and Lighting.
The textile industry.
Industrial Hygiene.

(δ) *Languages.*

English.	Spanish.	Russian.
French.	Italian.	

(ε) *Commercial Subjects.*

Commercial Arithmetic (three courses).
Book-keeping (three courses and seminar for teachers).
Commercial correspondence and office work (two courses).
Shorthand.
Typewriting.

(ζ) *General.*

Introduction to Psychology.
Introduction to the History of Art, as illustrated by the Art Museum of Cologne.
Development of Industrial Art in Europe.
German History (two courses).
English Literature.

(*d*) The Academy for Social and Commercial Sciences at Frankfort-on-the-Main announces the following courses for the winter 1901–02, but the list must be regarded as preliminary and incomplete:—

Introduction to Economics.
Practical Economics.
Social Problems.
Problems of Colonial Policy.
Consular Administration.
Civil Law.

Commercial Law.
Study of articles of Commerce.
Chemistry and Mechanics in their industrial aspects.
Electrotechnics.
Commercial Arithmetic.
Book-keeping.
Commercial Correspondence.
Commercial Geography.
Economic History.
Modern Languages.
History (general).
Philosophy (courses on).

IV. Teaching Staff.

At the Leipzig Handels-Hochschule there are forty-five teachers named in the programme. Of these, twenty-eight are professors at the University of Leipzig; eight are teachers at the Handels-Lehranstalt; seven give instruction in languages (one of the teachers thus employed having recently come to England in order to occupy an important position at the Liverpool School of Commerce); and two are teachers of shorthand.

At Aachen the number of teachers on the staff numbers twenty-six, and of these, nine are professors of the Royal Technical High School (both the Rector, 1901-02, and the Pro-rector of the latter give instruction in the commercial department); five are Dozenten of the Royal Technical High School; one is a director of telegraphs; one is a magistrate; one is a solicitor; one is engaged in business.

At Cologne the staff numbers thirty-one. Of these, seven are on the permanent staff of the Handels-Hochschule; nine are Professors, and one a Privat-Dozent of the University of Bonn, who come over to Cologne to give their lectures, as some of the staff of Reading College come from Oxford*; one is an eminent civil servant, who has been specially charged by the Prussian Minister of Public Works to give a course of lectures on Railway Economics at the Hochschule; and thirteen are residents of Cologne, who are giving lectures at the new institution. Of the latter, one is a councillor and three solicitors of the Upper District Court of Justice; two are directors of local museums; one is Director of the Archives; one is Director of the Local Commercial School; three are members of the teaching profession, and two are business men of the city.

At Frankfort the staff is still in course of formation, but twenty have been already appointed to it. Of these, eight are on the permanent staff of the new institution; one is Professor at the

* Bonn is about three-quarters of an hour from Cologne. There is a good train-service between the two places. From one point of view the Handels-Hochschule at Cologne is a new experiment in University extension.

University of Giessen; one is Professor at the University of Heidelberg; one is Director of the Statistical Department; one is a solicitor; one is a man of business; and the seven others are university graduates, who have undertaken to give special courses at the new Hochschule.

The reader will have observed that, in the case of three out of the four above-mentioned institutions, allusion is made to the fact that one or more local men of business are attached to the teaching staff. The University of Chicago has recently appointed a number of business men as lecturers in its faculty of commerce.* A proposal to the same effect has recently been made by Dr. Lodge, Principal of the University of Birmingham, in an address at Liverpool on Civic Universities. Referring to the suggested institution at Liverpool of a Faculty of Commerce, Dr. Lodge said :—

"Towards the institution of such a faculty as that of commerce we are doubtless all feeling our way, but it seems to me that if we are to turn out men truly educated for the highest kind of commercial pursuits, if we are to raise the status of the commercial man into a truly professional position—a position which men of practical genius have already attained, and always will attain in small numbers by their own unaided abilities and strong character—if we are to raise the general level of commercial training, and make it worthy of the greatness of the part which commerce plays and always has played in the history of the world, we *shall have to take a medical school as our pattern. One man cannot do it; a whole faculty is necessary, and the greater number of that faculty will, I expect, be men not holding endowed chairs, nor able to spare much time for teaching, but men really and actively engaged in the work itself; men of ability, leaders in business, who, like the prominent doctors in a city, may be willing to come down for an hour a day, or a few hours a week, and give to students the benefit of their great and always growing experience.* I do not say that it will be an easy matter to find men of business able and willing to do this, but I see no other way of getting it done that is likely to be half so good. I see no other way of dealing with the multifarious details and the immense variety of business transactions in such a place as this; and even now I feel that in this city we could put our finger on men who are competent to teach, and who might be willing to teach, and to fill up the outlines and fundamental principles laid down by a few endowed professors, from a sense of public spirit and a feeling of duty which they owe to the coming generation, and to the welfare of the country at large. So also, some day it may be expected that, at one or other of the colleges, a theological faculty will arise, on lines not altogether different. And perhaps, for all I know, in some places, a military and a naval college too. For all the professions, and for those subjects which are going to be professions, the example of a medical curriculum, with its five years of combined theoretical and practical training, seems to me the one to follow, with modifications appropriate to special cases."—*Manchester Guardian*, October 14th, 1901.

It will be generally felt that such an arrangement, if practicable, would be excellent, but its feasibility as a permanent, smoothly-

* *See* Mr. Hartog's paper on "Commercial Education in America," in Vol. 10 of this series.

working, and useful piece of organisation really depends on the fulfilment of two conditions—viz. (1) that the selected men of business should be skilful in the art of teaching, and (2) that the leaders of industry and commerce should regard their business position and opportunities, not as held by them primarily for their own personal profit and exclusive advantage, but as having attached to them certain professional responsibilities.

Of these two conditions the first is undoubtedly the humbler, but yet not devoid of great practical importance. The power is not given to everybody (and business men are no exceptions) to communicate his knowledge in the form, order, and measure which interest, enlighten, and impress the mind of the learner. Some few men are naturally gifted with the teacher's knack. Many more can learn it by dint of great pains, long trying, and frank criticism. But a great multitude neither possess the knack nor realise that they are devoid of it. And it is to be feared that both Germans and Americans more commonly possess it than Englishmen. An Englishman is apt to be a little ashamed of being didactic. He is afraid of being a bore. Through nervousness, or lack of natural or acquired skill in teaching, he often crowds too much into his lesson, or leaves out necessary links of his argument, or omits indispensable bits of illustration, or is painfully incoherent and even inarticulate. It must be remembered that he may never have been brought into contact with a really good teacher during his schooldays, or, if he were so brought, it is as likely as not that he hated the subject which the good teacher wished to make him learn. Furthermore, in order to teach a subject a man needs to know it in a different way to that which suffices for successful action. He has to present to his pupils considerable portions of the subject which for practical purposes in his own case he can afford to neglect. This fact is often an obstacle to a practical man who desires to impart to others a knowledge of his craft. He finds that he has to make explicit in words what he has for years been content to leave implicit in action.

The second condition, however, takes us into much deeper waters. It is proposed that the leading men of business in a university town (during, it must be remembered, their most active years) should give instruction at the university or university college, practically to all who might care to come, in the principles and practice of their trade. The argument is based on the analogy of the leading doctors of the same city, who make a similar sacrifice of time and strength in teaching students at the hospitals. Now, it must be remembered that the case of the sick and suffering in a hospital exert a moral claim on the conscience of the doctor which is of quite a different character to the claim likely to be exerted on the conscience of a prosperous and hard-worked man of business by the callow students of commercial science in an academic lecture-room. Moreover, by his visits to the hospital the doctor is gaining new experience from his "cases," whereas the man of business

would gain no new experience from his discourses at the university, except, perhaps, that of the great difficulty of delivering a good lecture. Nor does the unlikeness stop here. The whole conduct of a doctor's life rests on the professional idea: the conduct of a business man's business life has heretofore in most (though not in all) cases mainly rested on the profit-making idea. The etiquette which regulates the one man has virtually no existence in the case of the other. There is a deep difference between the ideals implicit in the two phrases "Business is business" and "It is my duty as a professional man." The doctor is bound by the honour of his profession not to keep secret any scientific discovery in order to derive from it personal profit. The trader regards a scientific monopoly or a secret process as a lucrative source of income. But the proposal that the business man should expound at the university the principles on which he successfully carries on his business really involves the abandonment by the business man of his former standpoint, and his coming over to the professional idea of the more liberal callings. This excellent change is more likely to come about if we do not attempt to disguise from ourselves its immense moral as well as economic significance. *Ex hypothesi*, the university will want, and the commercial students will most welcome, the men of business who have shown mastery in their calling. The fourth or fifth rate men of business, the failures or the self-advertisers, would not be welcome, and would not enhance the prestige of the university. Suppose, then, that a brilliant organiser of distributive concerns undertook to give a course of lectures on the art and science of shop-keeping on a large scale. He would have to prepare himself to see on the benches of his lecture-room the faces of many formidable competitors, anxious to pick up a few ideas from his successful experience. Yet it would be a doubtful act on the lecturer's part if, in order to escape the danger of being plagiarised, he practised a disingenuous economy of scientific or artistic truth. But, if he blurted out his secret methods, would he not justly feel that he was probably giving away thousands of pounds to some young man who might soon become his pitiless competitor?

Illustrations might be multiplied, but it is unnecessary to elaborate the point any further. True, there is in most callings (or rather in most callings as practised by most people) a certain neutral ground of common practice, which might well be described without any risk of personal loss. But this is exactly the part of "commercial science" which a skilful teacher, interested in business matters, could without much difficulty "get up" and skilfully expound. What the great man of business might usefully do in a course of lectures at the university would be to impart to his subject that indescribable touch of mastery, significance, and charm which genius alone can give.

It is noteworthy, however, at the present time from how many quarters this suggestion comes that the great men of business

should act in regard to the subject-matter of their art and science in the same professional spirit as doctors in regard to theirs. Several times, in the speeches delivered at the opening of the Commercial High School at Cologne, the note was struck that the rising generation of business men must be taught to be disinterested. And who will not most thankfully acknowledge the noble and disinterested benevolence which has actuated great numbers of men of business, more especially in this country? It is not in England that the hard "business" view has been most habitually pressed in commercial dealings. But competition is getting keener; economic relations are becoming more abstract; and it may well be that these anxious pleas for more "disinterestedness" in business are rather an expression of men's desires than an outcome of their sober forecast of the future. Or, some might say, these hopes are but an anticipation of what will be habitual when all trade and industry are "collectivised," and when the type of men who in this generation become successful leaders of commerce will, as salaried officials, communicate in occasional lectures to students of commercial faculties the details of their administrative routine.* But at any rate it will be generally agreed that whatever helps to give to trade and commerce the dignity of a profession will add to their moral prestige, will make men readier to discuss their principles and methods in the spirit of frank scientific inquiry, and will remove some of the repugnance with which the upholders of a more liberal culture instinctively regard the coarser kinds of commercial education.

A letter by Mr. Algernon Warren on "The Dignity of Commerce," printed in the *Times* of October 7th, 1901, gave singularly clear expression to a sense of the contrast between the ethical atmosphere of an English public school, which is professional in spirit, and the atmosphere of ordinary commercial life. Though I do not feel sanguine as to the success of Mr. Warren's suggested remedy, I venture to quote a few paragraphs of his letter as showing how powerfully certain ethical considerations affect the problem of commercial training.

" . . . To many a youth the entry into commercial life is a sad disillusion, if he has come to it from a public school. There he has had inculcated into him principles of honour and self-abnegation. While it

* One or two instances almost amounting to this might already be quoted from Germany. The Germans are also showing, as indeed they have shown in earlier epochs of their commercial history, a remarkable faculty for what may be called "Guild action" in commerce and industry. They appreciate the interest and dignity of the scientific aspect of business, apart from its pecuniary returns. They are more disposed to bring their intellectual efforts for the betterment of trade "into hotchpot" than we are. They combine, and profit by combining, where English traders, at all events till recently, seemed unable to overcome their tendency to expensive isolation. Compare Mr. Haldane's interesting account of the Central-Stelle, maintained for scientific research by a combination of rival manufacturers of explosives in Germany at an initial cost of about £100,000, and annual expense of about £12,000.—*Times*, October 23rd, 1901.

has been impressed upon him that he must be manly and self-reliant, he has been ever taught to sacrifice himself in various forms for the benefit of the others, and has witnessed the other boys doing the same; and when he enters his new school, that is, the commercial arena, a sense of repulsion and disgust with his surroundings is apt to seize him when he sees so many around him each fighting, as it were, for his own hand. It will be said that he, by entering into commerce, will be a contributor to an element which is lacking and sorely needed. But none the less it is certain that his previous educational training has been that which makes the contrast of the commercial atmosphere the more repugnant. It is usually less so for the boy who has been taught in a grammar school or commercial seminary. There he has had more foretaste of his future career; those around him are mainly boys whose fathers are in trade, and who have inherited the trader's instinct of acquisition, which gives so keen a pleasure that it more than compensates for the attendant discomforts to those who are thoroughly imbued with it.

* * * * * * *

" . . . The broader views held by public school masters and the greater toleration of religious creeds other than that of the Established Church of England have resulted in a greatly increased influx of the sons of commercial men into such schools; and in many cases the result has been that, although their boys may have largely benefited by entrance there, by the high moral standard and by the spirit of manliness and conscientiousness, they have been thrown amongst a large section of boys destined for avocations other than trade; and it is natural that their tastes and inclinations should be diverted, so that when the time comes for leaving they go half-heartedly into commerce, envying those of their fellows who prolong their studies at the Universities or who qualify for learned professions elsewhere. The detail work to which they are likely to be put at first will be a drudgery to them, for merchants and manufacturers still cling largely to the idea that as they begun so should their sons (with letter copying, indexing, etc.). The result of this is that large numbers of boys who enter trade with fair prospects before them of earning competences get restless, and forsake it before they have properly proved whether they are likely to succeed or not, and emigrate, or turn to overcrowded professions, thereby causing much trouble and expense to their parents.

" What remedies, then, can be suggested? The establishing of special classes dealing with commercial subjects has been advocated. But who is to teach them? Those who are well acquainted with the average types of public school boy will readily apprehend that they are not likely to take heartily to commercial details if imparted to them by men of the *status* and calibre of the ordinary city clerk.

" What is needed is that the minds of the boys about to enter on commercial life should be instilled with the dignity of commerce and made alive to its benefit to the community. Infinite good might result could well-educated merchants and manufacturers of acknowledged position be induced to deliver courses of lectures at public schools on commercial topics. It is true that this would entail a sacrifice on them of some of their hard-earned leisure, and that were recompense tendered them in pecuniary form it could scarcely fail to be inadequate. But the appeal to them should be one on the ground of philanthropy. Their words would carry immense weight. Who has ever read such a work as 'The Pleasures of Life' without being conscious of the influence for good which its writer, a man of high position in the commercial world, has been able to impart? And he does not stand alone. There are others such as he, men who have control over vast commercial operations, and whose words are looked for and listened to. And, if these would come and speak out before the intelligent audience of the public school, and interest their hearers by discourses calculated to impress upon them both the dignity and the

importance of commerce, the boys would thereby acquire a greater respect for it, and not merely look on it as some are prone to do—viz., as the shortest means of acquiring luxury—but would regard it as an indispensable factor of ineffable value in the universe; and the drudgery of the details at the commencement of their commercial life would be endured more cheerfully by the majority, owing to the clearer vista of the honourable position to be obtained in the future."

V. Admission of Students.

(*a*) At the Leipzig Handels-Hochschule the following are qualified for admission as students:—

1. Youths who have completed, to the satisfaction of the Government board of inspectors, the full nine years' course (ten to nineteen years of age, or over) at a public secondary school in Germany, whether classical, semi-classical, or non-classical (Gymnasium, Realgymnasium, or Oberrealschule).
2. Youths who have similarly completed the full nine years' course at those higher commercial schools which rank with the secondary schools named in (1) above.
3. Male teachers, trained at a Government normal school for elementary school teachers, who have already passed their second examination for a teacher's certificate.
4. Youths or men already in business who have completed, to the satisfaction of the Government board of inspectors, a six years' course at a public secondary school (*i.e.*, the whole of the course at a Progymnasium, Realprogymnasium, or Realschule, or the first two-thirds of the course at a Gymnasium, Realgymnasium, or Oberrealschule) and thus have obtained the certificate "zum einjährig-freiwilligen Dienst," provided that they can show the requisite intellectual maturity for the work of the Handels-Hochschule.

The "Matriculation Committee" (which consists of four members, viz., of the Director of Studies, the representative of the Saxon Government on the Senate of the Handels-Hochschule, a member of the Chamber of Commerce, and a Professor of the University of Leipzig, the last two being chosen by the Senate of the Handels-Hochschule) is charged with the duty of deciding any doubtful questions of intellectual maturity in the case of applicants for admission. This is a necessary provision, as, under (4) above, a boy might apply for admission in his seventeenth year. The matriculation committee also determines, in the case of foreign candidates for admission, whether they have enjoyed adequate previous education to enable them to profit by the courses of instruction offered by the Handels-Hochschule.

(*b*) The terms of admission to the Commercial Department of the Royal Technical High School at Aachen are harder than in the case of the other three institutions now under review. No German student may be admitted who has not obtained his promotion into the top class of a public secondary school with a full nine years' course. Foreign students have to satisfy the authorities

of the high school that they possess some corresponding educational qualification.

(*c*) and (*d*) The conditions for admission to the Municipal Handels-Hochschulen at Cologne and Frankfort are the same as those in force at Leipzig, with the significant addition that at Frankfort women may be admitted who have completed a full course of nine years' study at a secondary school for girls, or possess an equivalent qualification.

The reader will observe that the work of the German Higher Commercial Schools rests on the foundation of an intelligibly organised, intellectually efficient, and administratively "standardized" system of secondary education.*

The work of the Handels-Hochschulen presupposes a constant supply of students who (1) have acquired at school a definite and well-digested store of general knowledge; (2) have learnt how to learn; and (3) have been steeped in the German feeling of respect for organised knowledge (Wissenschaft). Like all the other types of Hochschulen in Germany, the Higher Commercial Schools may be compared to a soaring roof, resting on the strong, well-built walls of a thorough secondary education. Without those walls to build upon, the plans of the promoters of the Commercial High Schools would be but castles in the air.

Experience is as yet insufficient to show what type of curriculum in a secondary school is *ceteris paribus* the best preparation for the studies of a Handels-Hochschule. Dr. Raydt, of Leipzig, is *personally* of opinion that the best preparatory training is that given at such an institution as the Handels-Lehranstalt at Leipzig (*i.e.*, from nine to seventeen years of age), followed by two years' apprenticeship in a house of business. The course at the Handels-Hochschule would extend over two years, and be followed by a period of residence abroad.

VI. Diplomas and Courses of Study.

The full course of study in the Handels-Hochschulen of Leipzig and Cologne, and in the Commercial Department of the Royal Technical High School at Aachen, extends over four semesters, *i.e.*, two academic years. The course of study at Frankfort is not defined in the announcement at my disposal, but it will presumably extend over a corresponding period. In all four cases, students may take parts of the full course at discretion, and even single courses. In view of the varied needs and circumstances of the persons attending the new institutions no other arrangement would be reasonable.

* The only exception to this is the admission at Leipzig, Cologne, and Frankfort of certificated teachers who have passed through the Government Training Colleges for elementary school teachers. But the candidates thus qualified have been through an exacting course of intellectual discipline, though in a less "liberal" atmosphere than prevails in the secondary schools.

Leipzig and Cologne prescribe the two years' course in outline, in order to regulate the order of studies. In Aachen there is no obligatory course of study, but the courses of instruction are so arranged as to furnish a proper selection and succession of subjects.

At all the institutions, the vacations follow the arrangements in force at the German universities.

At Leipzig and Cologne the year's work begins in April (though students may enter at other times); at Aachen and Frankfort it begins in October. At Aachen, the authorities of the commercial department advise young men who may leave school at Easter not to come to the Hochschule till the following October, and to devote the intervening summer semester to foreign travel, or to practical work in a business establishment.

At Leipzig, Aachen, and Cologne students can be examined at the end of the two years' course, and, if successful, receive a certificate. Success in this examination confers no degree. Doubtless, however, there are some who hope that the day may come when Handels-Hochschulen will be able to confer the degree of Doctor of Commercial Science.

The Leipzig Handels-Hochschule also awards a diploma certifying fitness to teach commercial subjects. Special regulations, particularly designed to secure the candidate's knowledge of modern languages and attainment in the specifically commercial branches of instruction provided at the Hochschule, are laid down for the award of this diploma, which is given after an examination at the conclusion of two years' study. The compulsory subjects are (1) Higher Commercial Arithmetic; (2) Book-keeping; (3) German commercial correspondence and office routine; (4) Economics, Principles of Public Finance, and outlines of Commercial History; (5) Commercial Law; (6) Outlines of Commercial Geography, together with evidence that the candidate has sufficient power of reading and speaking English and French. The examination itself consists of four parts:—

(1) A theme written by the candidate at home during a period of six weeks before the examination. The subject of the theme must be drawn from Economics, Commercial Law, Commercial History, or Commercial Geography. The candidate has to certify what books, etc., he consulted in the composition of the theme.

(2) A written examination, in a closed room, extending over four hours in each subject offered by the candidate.

(3) *Vivâ voce* examination in all the obligatory subjects. Each candidate has to be examined not less than three-quarters of an hour, but from two to four candidates can be taken together.

(4) After passing (1), (2), and (3) the candidate has to give a trial lesson, at the Handels-Lehranstalt, on a subject assigned by the examiners. The candidate receives twenty-four hours' notice of the subject, and is submitted at the close of the trial lesson to a *vivâ voce* examination on methods of teaching.

VII. Statistics of Attendance.

(*a*) The following table shows the number of students at the Leipzig Handels-Hochschule since its opening in 1898 :—

First Semester.		Summer, 1898	97
Second	„	Winter, 1898–99	139
Third	„	Summer, 1899	194
Fourth	„	Winter, 1899–1900	243
Fifth	„	Summer, 1900	262
Sixth	„	Winter, 1900–1901	304

The total number of students who *matriculated* at the Handels-Hochschule, during the first three years of its existence, was 639.

The following table shows the age of the students at the Leipzig Handels-Hochschule, and the numbers respectively of German citizens and of foreigners among the students, in the Winter Semester, 1900–1901.

Age of the Students.	German Citizens.	Foreigners.	Total.
18 years	10	22	32
19 „	30	26	56
20 „	43	16	59
21 „	33	15	48
22 „	31	20	51
23 „	27	9	36
24 „	23	5	28
25 „	11	5	16
26–30 years	23	8	31
Over 30 years	17	4	21
Total	248	130	378

Thus, more than half of the students are aged 19–22, *i.e.*, are of the age which corresponds to the wishes of the founders of the institution. Nearly one-third of the students are foreigners.

It is possible that this large international element may be regarded as having some advantages. It will certainly provide opportunities

for comparisons of experience and for interesting intercourse; and these may add to the liveliness of the discussions, and otherwise stimulate intellectual activity. But so large an admixture of foreigners in an educational institution has grave drawbacks. The presence of such heterogeneous elements nearly always lessens the average quickness of a class. The common personality of the class (on which the teacher so much depends) forms itself more slowly. There are difficulties about language. Some of the foreigners do not quickly apprehend all the *nuances* of expression. And, in discussing somewhat delicate matters of international concern, there are frequent opportunities for misunderstanding.

The following tables show (1) from what States of the German Empire, and (2) from what other countries, the German and foreign students respectively come. The preponderance of Prussians in the one group, and of Russians in the other, is noticeable.

German Empire. *Total*, 248.		Foreigners. *Total*, 130.	
Prussia	133	Austria-Hungary	24
Kingdom of Saxony	60	Belgium	3
Anhalt	7	Bulgaria	4
Baden	3	Denmark	2
Bavaria	13	France	1
Brunswick	6	Great Britain	1
Alsace-Lorraine	2	Greece	1
Hamburg	2	Italy	4
Hesse	2	Norway	1
Mecklenburg-Schwerin	4	Roumania	3
Mecklenburg-Strelitz	1	Russia	63
Oldenburg	1	Servia	6
Sachsen-Altenburg	5	Sweden	3
Saxe-Coburg-Gotha	1	Switzerland	7
Saxe-Meiningen	1	Turkey	4
Saxe-Weimar	3	North America	2
Schwarzburg-Sondershausen	1	South America	1
Württemberg	3		
	248		130

The following table shows, in respect of each of the two last winter semesters, the previous education of the students. Unfortunately the statistics do not show the type of secondary school which was attended by those students who intercalated a period of practical

business life between the close of their secondary school-days at sixteen and their admission to the Commercial High School.

	Winter Semester, 1899–1900.			Winter Semester, 1900–1901.		
	German Citizens.	Foreigners.	Total.	German Citizens.	Foreigners.	Total.
Students who, after spending six years at a Secondary School (10–16), were for a time engaged in business before entering the Commercial High School.	108	28	136	129	28	157
Students who entered the Commercial High School direct from the top class of a classical Secondary School (9 years' course).	20	23	43	23	32	55
Students who entered the Commercial High School direct from the top class of a semi-classical Secondary School (9 years' course).	5	–	5	8	–	8
Students who entered the Commercial High School direct from the top class of a non-classical Secondary School (9 years' course).	1	8	9	2	14	16
Students who entered the Commercial High School direct from the top class of a fully privileged Commercial or Industrial School with a nine years' course of study.	1	9	10	4	32	36
Teachers who have been trained at a Training College for Elementary School teachers, and therefore have not been at a public Secondary School.	37	–	37	30	2	32
Students drawn from other callings, nature of previous education not specified in statistics.	3	–	3	–	–	–
Total - - - -	175	68	243	196	108	304

In the course of the academic year 1900-1901 two examinations were held at the Leipzig Handels-Hochschule. One of these examinations was for the award of the diploma for men of business. Twenty-six candidates presented themselves; twenty obtained the diploma. Of these one passed as "very good," eight passed as "good," and eleven as "sufficient." Of the six candidates who failed, five were foreigners. There were nine foreigners among the twenty candidates who obtained diplomas. The other examination was for the "Commercial teacher's certificate." Nine candidates presented themselves; three withdrew during the examination; the six who remained obtained certificates—one gaining a certificate of the first grade, four of the second, and one of the third.

These statistics about the examinations for diplomas and certificates seem to indicate that (except perhaps in the case of the teacher-students) those who attend the Hochschule do not as yet set much store by entering for the final examination and getting a certificate. Of the teacher-students, 28·1 per cent. entered for their special examination, but only 8·5 of the other students entered for the examination for the general diploma. Of the foreign students, 12·9, but only 6·1 of the German students, entered for the diploma examination.*

(*b*) The following table gives the attendance at the Commercial Department of the Royal Technical High School at Aachen since its establishment.†

——	Enrolled Students.	Persons allowed to attend the lectures, though not qualified to be enrolled. "Hospitanten."	Total.
Winter Semester, 1898–1899	9	10	19
Summer „ 1899 - -	12	11	23
Winter „ 1899–1900	9	11	20
Summer „ 1900 -	9	7	16
Winter „ 1900–1901	10	9	19
Summer „ 1901 -	12	7	19

* *See* "Drittes Jahresbericht der Handels-Hochschule zu Leipzig." Leipzig, Max Hesse, 1901.

† "Programm der Königlichen Technischen Hochschule zu Aachen, f r das Studienjahr, 1901–1902" (Aachen, Georgi), p. iii.

(c) At the Handels-Hochschule in Cologne there were 130 regular students during the first semester. Of these, sixty-eight were matriculated students, eighteen were teachers preparing themselves to give instruction in commercial subjects, and forty-four were persons who, though not matriculated, were allowed to attend the lectures (Hospitanten). In addition, the courses of public lectures were attended by 629 hearers.*

VIII. Fees.

Leipzig.—Entrance fee, £1. The student pays in addition a fee for each course which he attends.

Aachen.—The student pays according to the courses which he attends.

Cologne.—Matriculation fee, £1. College fee for admission to lectures, per semester—

(1) For German students, £6 5s.

(2) For foreign students, £12 10s.

"Hospitanten" pay a fee for each course attended, foreigners paying twice as much as Germans.

Frankfort.—Regular students pay for admission to lectures, per semester—

(1) If Germans, £6 5s.

(2) If foreigners, £12 10s.

"Hospitanten" pay a fee for each course attended, foreigners paying twice as much as Germans.

III

The reader may ask why there has been such a rapid development of these Commercial High Schools in Germany during the last three years. It may be replied that a number of reasons have contributed to this remarkable growth :—(1) There is an increasing belief in commercial circles in Germany that the older forms of commercial education are inadequate to the needs of men who look forward to becoming leaders in modern trade. The old and often excellent training given through apprenticeship is becoming virtually obsolete. Far-seeing men of business in Germany would apply to the case of their own sons the words recently used by the Lieutenant-Governor of the Punjab when he installed the young Maharajah of Patiala: "The march of events and the change of modern ideas render it necessary that those destined to be rulers and leaders should be qualified to deal, not only with the questions of an age now passing away, but also with those of the present

* *Hochschul-Nachrichten*, Heft 131/132. August–September, 1901.

and future. . . . It may be a fascinating theory that a boy . . . should be brought up in the old school, and trained only in the old ways; but the times move too fast for this. If you would guard the coming race of rulers from failure, you must equip them for the march of events and the difficulties of the hour."* (2) The Germans have inherited a noble and intense belief in "Wissenschaft." This belief, which is ethical and æsthetic as well as intellectual, is the great glory of the German nation. Its influence is nobly shown in the breadth of view and intellectual composure of the best type of Germans, and its indirect results can be traced in the wonderful achievements of the German people—achievements of unity reached through subordination and co-operation, in spite of a persistent tendency to isolation and excessive individualism, which has shown itself at many points throughout German history. The ordinary German plods and perseveres; but he plods along a line which science has marked out for him, and perseveres as one unit in a combination which has been ordained for him by some superior intelligence. It being thus the intellectual habit of the best Germans to study every aspect of life in a scientific spirit, the argument that the momentous and gigantic problems of modern trade and industry ought to be subjected to the most searching scientific investigation seems to them irresistible. Nor do they doubt for a moment that such investigation is certain to be extraordinarily interesting and may be profitable. All the great professions, the German argues, are approached through an avenue of prolonged professional training. Modern commerce is attaining to the dignity of a great profession. It should, therefore, have its course of professional preparation of the highest university type. (3) Germany has become again what she was in the Middle Ages—a great commercial Power. Trading instincts are native to the German character. Since her political and economic unification, the German Empire has advanced with gigantic strides in its commercial undertakings. German financial and commercial development (as is shown by the life of Johann Georg von Siemens, the great director of the Deutsche Bank) has been intimately connected with German *Weltpolitik*. There is a marked feeling of national pride in German commercial success, and a strong desire to establish that success and to extend it. Germans feel that they must secure foreign markets for the products of German industry. Moreover, they are possessed with the ambition to make Germany a very great power in the world. Such a policy must have a firm economic basis. Hence nothing must be left undone in the effort to improve the intellectual vigour and practical skill of German men of business. The characteristically German way of accomplishing such improvements is to establish a new, intellectually efficient, and skilfully adapted course of higher education. Moreover, some Germans seem to cherish the hope that sea power and foreign trade may

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Times, October 25th, 1901.

introduce into German life some of the elements of successful opposition to excessive bureaucratic control. The great fabric of central administration in Prussia was built up under the powerful influence of two ideas—Kant's doctrine of Duty and Fichte's conception of an economically balanced and self-sufficing State. So far as the second of these two ideas are concerned, the trend of events has carried Germany far away from Fichte's ideal. The commercial and industrial elements have heavily outweighed the agrarian. But the administrative organisation has not yet been fully readjusted to all that is implied by this deep-seated economic change. (4) There has been a shifting of the centre of political gravity in Germany as in Europe at large. The commercial and monied classes are growing in importance. Those therefore who will be the leaders of the commercial classes in the next generation must be educated up to their new position. Grades of education have a much more definite social significance in Germany than in England. Higher commercial education will, it is hoped, produce a type of commercial leaders qualified to take high positions in the Government. Commercial callings will then enjoy higher social consideration. The commercial classes will no longer have the mortification of seeing great administrative positions bestowed on "Juristen" instead of on men of business. In fact the type of man who now becomes a "Jurist" will find it better to his interest to devote himself to commerce, as an avenue to a political and administrative career. (5) The generation of German men of business, which has built up modern German trade, got much of its education by living through stirring times and by taking an active part in the construction of the new conditions.* But the rising generation will find the conditions ready-made for it; it will be virtually deprived of one of the educational disciplines from which the previous generation learned so much. At the same time it will have to defend German commerce against the ever-renewed attacks of competing nations. Fear of the future competition of America haunts many German minds. It is necessary therefore (many of the more thoughtful Germans are disposed to urge) to give to the rising generation the best possible commercial training in order that scientific instruction may make up for the lack of the rougher education ensured by creative effort. (6) Many feel too (and the feeling is not confined to Germany) that the old educational tradition is somewhat outworn and obsolete. A new type of education is looked for, in view of the changed needs of modern life. This new type of education must be intellectually severe, morally inspiring, and in close relation to the facts and opportunities of the modern world. Higher commercial education on liberal lines is one of several

* A German writer has recently pointed out what a small group of men really built up modern German commerce and finance. A typical leader in that group was the late Dr. Georg von Siemens. An excellent account of his life appeared in the *Times* of October 25th, 1901, from its Berlin correspondent.

efforts which are being made to re-write the old educational tradition. (7) But there are others who maintain that the *aims* of the old liberal culture were infinitely higher and more ennobling than any tacit or avowed inculcation of covetousness as a ruling principle in life. Yet, they continue, if the *aims* of the older culture are to be retained, the *vehicle*, by means of which a love for those aims was imparted, must now be changed. Those who incline to this view hope that a liberal type of higher commercial education may do something to divert men from a narrow profit-seeking type of business ambition, and to substitute something of the enthusiasm of scientific inquiry for the baser and more selfish motives of personal gain. And if, in the course of generations, the profits of capital and the wages of management must tend to decline; if trade and industry promise to become more "collectivised" and to be less and less the sphere of the independent trader, so that the type of man who is now in business on his own account will as a rule be serving as the paid official of State or corporation; then, they would argue, we shall do well if, in the meantime, we do all in our power to strengthen the scientific, as distinguished from the profit-seeking, interest in business. The scientist who loves his work has a more choice-worthy life than the self-regarding devotee of profits.

But there are other reasons for the rapid growth of Higher Commercial Schools in Germany during recent years. Signs of municipal rivalry seem to show themselves in the accounts of the efforts made to establish Handels-Hochschulen in Frankfort as well as in Cologne. The latter city rejoices once again to be able to number a Hochschule among her institutions. In fact, it is hardly too much to say that a great German city is as proud of having a Hochschule as a great English city is of possessing the right to call its chief magistrate Lord Mayor. When Cologne got a commercial Hochschule, there were signs that Frankfort could not long allow herself to remain without. Some shrewd observers suspect that German trade and industry have shot forward somewhat too rapidly and have a little overgrown their strength. The same sort of feeling in regard to the recent rapid increase in Commercial High Schools is reflected in the warning uttered at the opening ceremony of the Cologne Hochschule by Dr. Stegemann, of Brunswick, who has, perhaps, done more than any other single man in Germany to further the interests of the best type of commercial education. He openly said that Germany has got, *for the present*, plenty of Commercial Hochschulen, and deprecated any precipitate advance in this province of education until time and experience had established the work of the institutions which had been already established. It has always been one of the weaknesses of the German character to press things to extremes. And there are not wanting signs of a tendency to press commercial education to an extreme. The strong conservative forces, however, in German education will successfully resist any undue tendency in the direction of purely utilitarian training.

But higher commercial education, as understood by its most intelligent advocates, is by no means narrowly or predominantly utilitarian. It is intended to provide liberal culture through the intelligent and scientific study of the practical problems of modern life. The movement, however, to establish university colleges for this enlightened purpose will have to overcome many formidable difficulties, besides the inertia of established interests. (1) The cost of University Colleges of Commercial Science must needs be exceedingly great. (2) Only a small number of students, capable of profiting by the highest commercial education, is likely at present to be forthcoming. This will make the cost per head seem very large. And, as the institutions will be largely maintained out of public money, and as many of the students most likely to be forthcoming will be drawn from well-to-do families, there is a likelihood of complaints being made that the cities are taxing themselves to give specially valuable educational opportunities to a small group of students, whose parents could afford to make much greater sacrifice on their behalf. (3) The fact is that the supporters of the Higher Commercial Schools are not really in complete unity among themselves. The most enlightened of them know that what is wanted is commercial education of the highest academic type, imparted to a few singularly competent students by a large staff of singularly competent professors, with the ultimate purpose of enhancing, not the personal wealth of the students themselves, but the collective power, influence, and prosperity of the German Empire. But indispensable aid is rendered to the new movement by a number of people whose thoughts on the subject are on a very different level, and who conceive that the new Commercial High Schools will provide (*a*) a quicker road to wealth for the clever students, (*b*) a number of skilled commercial experts who will be hired at cheap rates by manufacturers and employers in the future, and (*c*) an increase of commercial prosperity to the town which establishes the new institution. Doubtless, in a measure, all these hopes may be fulfilled, but, if the true university ideal is maintained in the new Hochschulen, there will be a constant tendency for their work to become scientific and scholarly, rather than utilitarian and immediately lucrative. Also the benefit of the new institution will not be at all strictly limited to the town which taxes itself in its support. Nor will the benefits be confined to the German Empire, for one of the essential characteristics of modern trade is that it is increasingly cosmopolitan in its tendencies, principles, and influence, and therefore alien in spirit to much of the hitherto dominant ideal of German administration. (4) Moreover, there will be a constant difficulty in getting the right kind of teachers. At bottom, there is a conflict of ideals between the two parties, which are combining to establish these Commercial High Schools. Some, at least, desire a more disinterested and scientific form of commercial effort. Others aim at getting an increased power of making money. This unavowed conflict of ideals will often show itself when it is necessary

to select teachers. What type of man will be chosen? The scientific student, with a large, disinterested, though not unpractical, view of the subject; or the more commonplace, rather shallow, but bustling teacher, whose mind is concentrated on the practical minutiæ of commercial life and never plays freely round the underlying questions? The choice of teachers will also, especially in Germany, be attended by a further difficulty. There is likely to be a plentiful supply of what may be called pseudo-practical teachers, "viewy" men, whose notions have the same relation to the actual facts of life as Jules Verne to a Tyneside workshop. (5) In the programmes of the new Commercial High Schools in Germany there is a singular and significant absence of any reference to ethical studies. "I don't do business with humane people" was a favourite maxim of one of the makers of modern German finance. This, however, is a perilous doctrine—not least perilous to the nation which applies it or approves of its application. During the last two generations German thought has, in more than one department, grotesquely exaggerated the influence of purely economic factors in human development. Against this tendency, itself a reaction against an opposite exaggeration, there are now signs of another reaction still. But if at this moment a number of Higher Commercial Institutions are established, each in a sort of intellectual backwater of its own, there is every likelihood that history would be taught (and not history alone), in mischievously distorted perspective, and with a misleading economic bias.

The questions of modern industry and commerce are inseparably bound up with ethical questions, and no kind of training for the business men and employers of the future can be permanently beneficial which fails to inculcate clear, moral principle as well as clever, economic calculation.

But on two points of fundamental importance Germany is teaching the world lessons which cannot be too often repeated. It is a blunder to specialise too early in life. And the only possible basis for a successful system of higher education (be it commercial, technical, or professional) is to be found in an intellectually thorough, readily accessible and morally vigorous system of secondary education. Where Germany is in danger of losing much of the benefit which a good system of secondary education might confer is that she thinks too much of the purely intellectual side of instruction, and devotes too little time and thought to school-games and to the formation of character.

M. E. SADLER.

October, 1901.

ON THE MEASUREMENT OF MENTAL FATIGUE IN GERMANY.

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In order, therefore, to glean some knowledge of the subject which might be turned to good account, he sent round a list of queries to various prominent educationists and teachers, asking for information derived from observations either on themselves or their pupils on the following points:—

1. The symptoms of mental fatigue.
2. The types of disease due to overwork.
3. Signs of commencing fatigue.

Of the 116 answers returned, Galton made a statistical report, expressly refraining from criticism and only arranging the various observations according to their physiological or psychological standpoint, and in the case of conflicting statements saying how often they recurred in the replies sent in. Material obtained in this fashion can of course scarcely be regarded as conclusive evidence. Among the replies received were some which even questioned the very possibility of such a thing as mental overwork, and it is not unlikely that some of the statements made were influenced by personal interest or by the point of view previously adopted in the matter.

Nevertheless the report contained much that might serve to stimulate further inquiry into, and more exact observation of the phenomenon of mental fatigue.

Amongst other conclusions, it is worthy of notice that the replies were tolerably unanimous with regard to the opinion that symptoms of overwork set in more frequently in the case of persons who work independently than with those whose work is done under supervision, more frequently, in fact, among teachers than among the taught, and those who cherish ideal aims and neglect their health in the pursuit of these are the most liable to become its victims.*

The immediate object of those who have initiated investigations into the subject of mental fatigue has been to devise methods of ascertaining and expressing numerically the capacity for work of the individual. This accomplished, it becomes possible to compare work done in a fatigued, with that done in a normal state, or to compare the physical or nervous state of the individual before and after work done, and thus secure a comparative measure of the fatigue engendered by a definite amount of work.

The methods hitherto employed can be most simply classified under three heads.

The first, which may be termed the "Physical or Muscular Test," consists in drawing conclusions as to the presence and extent of mental fatigue by measuring the loss of muscle power thereby entailed, and depends on the well-known physiological principle that fatigue produced by mental work is not confined to the brain but reacts on the whole system, producing a reduced capacity for physical labour.

* Clinical reports on the consequences of overwork are to be found in *Ufer*, Geistes-störungen in der Schule, Wiesbaden, 1891; *Kussmaul*, Die Störungen der Sprache, p. 189; *Ribot*, Das Gedächtnis und seine Storungen, p. 92.

The second and more direct method is a mental test. Here conclusions respecting fatigue, recuperation and capacity for work are drawn from the results of mental work itself, set under definite conditions as to time or quantity. This method has hitherto been more generally employed by investigators than either of the other two.

The third method, and the one which of all the three undoubtedly gives the greatest promise of proving a reliable means of gauging the degree of mental fatigue present at any time, is based on the principle that mental work always produces loss of nervous tension or tone, resulting in diminished sensitiveness of the skin, particularly in certain parts, and the measurement of the sensitiveness of the skin would seem to afford a fairly constant and reliable index to the degree of fatigue produced. The instrument made use of for this purpose is known as the Æsthesiometer.

The application of the first of the above-mentioned methods is due to Mosso, Professor of Physiology in Turin, who perfected a method of measuring the work done by a certain group of muscles in raising a definite weight again and again at regular intervals until complete exhaustion ensued.*

For this purpose Mosso hit upon the idea of employing an adapted form of the Myograph, an instrument devised by H. von Helmholtz for recording muscular contractions, the principle of which may be gathered from the following well-known experiments:—

The leg of a frog is separated from the rest of the body, and to its extremity a pencil is attached, which is so arranged that its point comes in contact with a cylinder covered with sooty paper, which revolves round a vertical axis; as long as the leg remains at rest, the pencil traces out an even line on the revolving cylinder, but if the nerves connected with the muscles are excited by electricity, the muscles contract, and the pencil traces a curve on the cylinder, first upward and then downward, whose form corresponds to the muscular contraction of the leg, and gives a measure of the energy developed in the leg by the nervous irritation produced by electricity. After continued applications of electricity, the muscle becomes tired and the curves traced on the cylinder show a corresponding modification in size and form.

Acting on the principle here exemplified, Mosso constructed the *Ergograph*, an instrument designed to record the work done by a particular muscle or group of muscles of the human body. The chief point aimed at in the construction of the instrument was to isolate the working muscles completely, so that no other muscle could be in a position to aid them when tired. The apparatus is accordingly arranged so that one part of it holds the arm, hand, and all the fingers fast, except the middle finger, which alone is capable of extension and contraction; that is the flexor muscles alone can be brought into play; the other part of

* La Fatica. *Angelo Mosso.* Milan, Fratelli Treves, 1892. French translation, La Fatigue intellectuelle et physique. Traduit de l'italien, sur la Ve édition par P. Langlois. Paris, Félix Alcan 1896.

the apparatus is similar to Helmholtz's instrument, except that to the writing apparatus, which records the curves on the cylinder, a weight of two, three, or more kilograms is attached.

When using the instrument the person who is to be subjected to the test contracts his middle finger at regular intervals of time, generally every two seconds; the height through which the weight attached to it is thus raised, is recorded on the cylinder, and decreases gradually until at length, in consequence of fatigue, the flexor muscles have no longer the power to raise the weight at all, so that the mark on the cylinder appears simply a straight line. If a grown man uses a weight of three to four kilograms, and repeats the contractions every two seconds, he is usually able to raise the weight forty to eighty times, each lift being, as a rule, slightly less than the previous one.

If now we multiply the sum of the heights of all the lifts by the weight raised, we obtain a measure of the whole work done in kilogram-metres (kgm.).

If the highest points of all the separate contractions as recorded on the cylinder be joined, the result is a line of characteristic form known as the Curve of Fatigue, "Ermüdungskurve."

This curve displays a characteristic and constant form for each individual, supposing him to be in fresh condition and the weight raised and the intervals of time to be the same at each trial, from which it may be inferred that every person has special characteristics as regards capacity for work, and liability to fatigue. This inference is confirmed by the following experiment. The nerves of the muscles employed in lifting the weight attached to the Ergograph were subjected to the action of an electric current, so that all mental influence was eliminated. In this case, the curve obtained from the record of the work done by the excited muscles showed again the characteristic form peculiar to the individual, although deficient in length and height. At the same time, however, variations in the mental and physical state of the individual have of course a direct influence in the form and size of the curve; the curve is in fact, as Mosso tells us, "the resultant of a complexity of causes which influence the muscles, nerve centres, and circulation, and depend on the composition of the blood, and the general condition of the system."

Increase and decrease of bodily vigour, practice, mode of life, duration of sleep, rest, mental excitement, physical as well as mental exertion, all tend to cause modification of the curve; even slight disturbance of the digestive organs, a night of broken sleep, or a heavy dinner produces a material modification. After severe mental labour, for instance, one hour's rest is found to be insufficient for the muscles and nerves actuating them to regain their former vigour, and the normal curve is only produced after a longer period of rest. Practice, of course, strengthens the muscles and enables them to perform more work in course of time, but the results of practice can easily be distinguished and do not affect the characteristic form of the curve.

One interesting and important fact drawn from these experiments is that *the fatigue produced by every known cause is*

far more pronounced in the case of the young than with older persons.

A comparison of the curves obtained from different individuals affords an interesting insight into their respective working powers.

Seldom are the curves alike; the number of lifts varies, as also the height of each single effort.

With some persons the contractions attain the same height for a considerable period and drop suddenly towards the end, with others they drop more quickly at first, while in the case of others again, the height decreases regularly for a considerable period, and suddenly sinks to a minimum after some time.

In fact, the record of the Ergograph bears out the results of ordinary observation, that some persons feel tired and begin to flag almost immediately, while others work at comparatively high pressure for some time and give way suddenly as complete exhaustion ensues; some are capable of longer, others of shorter periods of work.

It may not be out of place here to refer briefly to the views generally recognised at the present day in regard to the nature and origin of fatigue.

Dr. Shelley in the "School World" for September 1899, says,—"The sensation of fatigue, whether this be experienced in connection with muscular or mental labour, is dependent on two things, both the direct result of that labour, viz., (1), a true fatigue of the tissue due to the temporary exhaustion—a using up—of its latent energy, which is to be met by nourishment and rest; (2), a true poisoning of the tissue itself by the accumulation of its own waste."

In all cases of volitional work the wear and tear of the nervous system must be taken into account as well as the waste of organic material.*

Dr. Kraepelin, Professor of Psychiatry in Heidelberg, considers that the apparently intimate action and reaction between mind and body when either is subjected to severe exertion is to be attributed to fatigue of the nervous system. In the course of protracted physical exertion, whilst the work accomplished by

* Dr. Shelley, the consulting medical officer of Haileybury College, in an interesting article on school hygiene in No. 9 of "School World," says:—"All intellectual work is but a form of bodily labour, it implies an expenditure of nervous energy, a destruction of body tissues, and a production of effete poisonous waste material, just as occurs in connection with muscular effort. Moreover, this nervous tissue, on the physical changes of which an output of intellectual work depends, is far more delicate in structure, and much more easily disorganised than is muscle substance; *it is far more immature relatively at any given age in the young individual*, and in relation to the whole race its modern development is from the evolutionist's standpoint, far more recent and, as it were, less consolidated than is that of the muscular system. Hence the obvious need of caution and watchfulness in dealing with a tissue which is, in the young, actually in process of formation as well as of development, a tissue so delicate and so liable to injury, easily stimulated, and speedily exhausted, readily moulded in virtue of its physiological and psychical plasticity, endowed with enormous potentialities, yet, in the young child, developed only a little beyond the embryonic stage."

the muscles decreases, the application of nervous force increases, for the muscles as they become fatigued need a more powerful stimulus to incite them to further exertion.

In the case of brainwork, the nerve fatigue is probably very much greater than is engendered by physical labour. This strain on the nervous system produces a diminution in the sensitiveness of the skin, on which phenomenon is based one method of measuring mental fatigue which is discussed below.

The poisoning of the tissue is brought about by chemical processes in the organic cells. In physical activity more waste material is formed than in a state of rest. The more intense or prolonged the exertion, the more profuse is the production of it. It not only impedes the activity of the cells or muscles in which it is formed, thus rendering them less and less capable of exertion, but enters also into the circulation, and is thereby brought into contact with the nerves and cells of all parts of the body.

At the same time, however, it undergoes a constant process of combustion in the blood and elimination by means of the liver, lungs, skin, &c.

The production of this waste material at a greater rate than that at which its elimination can be effected, causes it to accumulate in the system, and is probably the chief factor in producing the sensation of fatigue; if the amount thus brought into circulation exceeds the physiological limits of health we become ill.

The most potent factor in enabling one to retard the formation of waste material and to rid the system of it is rest.

Now Mosso points out that as the brain-cells are the material basis of all mental processes there take place in the brain when actively employed, organic changes which, as we are led by experiment to infer, yield products similar to those due to muscular exertion, and these products react similarly upon the whole system.

It is a matter of common observation that if any one organ of the body becomes more or less exhausted, this exhaustion does not confine itself for long to the part in which it originated, but affects gradually the neighbouring organs and finally the whole system. For example, after a fatiguing walk, it is no longer possible to do so much work with the hands as usual, or to sit down to severe mental study at once; an adjustment of the working powers of the whole organism takes place, a transference of fatigue from the more to the less fatigued parts. This introactive principle holds good for mental as for physical exhaustion, and all the phenomena incident to mental work and fatigue can be explained on the same principles as those which characterise physical exertion, and are, in all probability, subject to similar laws. So although one often feels mentally stimulated after physical exertion when not too severe, this effect is generally only transitory, and is probably due to other causes which affect the general tone of the system, such as the inhaling of abundance of fresh air, and the consequent speedier elimination of waste material from the system.

Experiments with the Ergograph were also carried out by Maggiora,* who pointed out that longer intervals between each act of lifting produced a more favourable curve and retarded the appearance of symptoms of fatigue. He also demonstrated the fact that to work a fatigued muscle has a much more unfavourable effect on the system than to work a comparatively fresh one. If a muscle has reached an advanced stage of fatigue, heavier calls must be made on the nerve centres and greater volitional impulse given, in order to induce it to go on working. A strain is thus placed on the nervous system, and the final contractions preceding complete exhaustion are infinitely more exhausting than the previous ones. Experiments undertaken on other lines have gone far to prove that the same principle holds in the case of mental work, especially with young children, who should therefore never be pressed to work to the limits of their powers.

Mosso only experimented with the Ergograph on adults, and it was left to another investigator—Dr. Ferdinand Kemsies, an Oberlehrer in one of the Berlin Realschulen—to apply this instrument to the measurement of fatigue in school children.†

Kemsies subjected pupils to it regularly for four months in one of the primary schools and in one of the real schools in Berlin, at all times of the day and often after every lesson.

He also made use of it before and after free days to determine the influence of these on school-work.

The pupils chosen for this purpose represented in their capabilities the average of their classes, and were, as a rule, attentive and hardworking.

The first conclusion which Kemsies draws from his measurements is that *concentrated attention combined with bodily or mental exertion produces loss of muscular power after a comparatively short time.* Every subject of instruction may produce it, according to the energy with which the individual devotes himself to it, his particular bent or bias, and his power of resistance to fatigue at the time. But compensation takes place after a comparatively short time, one or two hours later, if a change takes place in the nature of the work, especially if the change be to work of a lighter character.

The notion that it is not the change of work, *per se*, which exercises an ameliorative influence on the mental powers, but the transition from work of a severe to that of a lighter character, is confirmed by several investigators. Dr. Kraepelin, a keen and critical writer, remarks, in his latest contribution‡ to our knowledge of this subject:—"Rousseau's idea that rest is change of work only holds good in so far as the change is to work of a lighter character, or at least to work which taxes other organs of the body, the strain imposed by which is so slight as to admit of partial recuperation of the organs previously fatigued." *A hygienic sequence of work, in fact, ought to be a cardinal feature of every school curriculum.*

* Ueber die Gesetze der Ermüdung.

† *Kemsies*, Zur Frage der Ueberbürdung unserer Schuljugend.

‡ Zur Ueberbürdungsfrage: Jena, Gustav Fischer, 1897.

In illustration of this principle, the following measurements made by Kemsies on pupils of the fourth class of the above-mentioned Realschule before and after every school-hour are interesting.

(Kgm. = Work done in Kilogrammetres, as measured by the Ergograph.

——	Pupil A.		Pupil B.	
	Kgm.	Gain or loss.	*Kgm.*	Gain or loss.
8 a.m.	1·940	—	1·250	—
Geometry	—	−0·411	—	−0·342
9 a.m.	1·529	—	0·908	—
French	—	+0·135	—	+0·048
10 a.m.	1·764	—	0·956	—
National History	—	+0·118	—	−0·191
11 a.m.	1·882	—	0·765	—
Drawing	—	−0·383	—	+0·051
12 noon	1·499	—	0·816	—
German	—	+0·383	—	+0·178
1 p.m.	1·882	—	0·994	—
Total loss of power in the course of the morning	—	−0·058	—	−0·256

Here, in the case of both pupils, a considerable decrease of muscular power reveals itself after the first hour's Geometry, while the hour at French, which immediately succeeded it, evidently made much slighter demands on the mental powers, as both showed a slight increase of muscular power after it. In neither case was the diminution of muscular power at the end of the day's work sufficient to lead one to infer that the strain of five hours' work broken by short intervals was excessive.

To this feature of the greater or lesser strain imposed on children by the various subjects of instruction, Kemsies devoted a large number of experiments, and the results seem to show that, under ordinary circumstances, each subject has a tolerably constant relative value in producing fatigue, the measurements taken before and after the school-hours showing, in the case of some subjects, a fairly uniform loss of power, in the case of others no loss worth mentioning, and, sometimes, even recuperation.

To enter further into details, gymnastics, as a rule, reduced the measurements of the Ergograph very considerably. Thus, with one boy of the fourth form of the Realschule the readings taken before and after an hour's gymnastics were respectively—

Before ...	0·911	0·941	1·264	2·264
After ...	0·735	0·823	1·000	1·823

With another:

Before ...	1·148	1·224
After ...	0·434	0·867

a very marked reduction.

Again, the readings taken from three boys in the primary school were as follows—

Before ...	0·580	0·714	1·380
After ...	0·490	0·795	0·700

Here, in one case, an increase of muscular power was recorded, pointing to recuperation of the system.

Mathematics appeared to make heavy demands on the system, fully equal to that produced by gymnastics. In the case of two Realschule boys the readings were—

Before ...	2·265	1·940	1·444
After ...	1·617	1·529	1·199

while five boys of the primary school showed the following readings—

Before	1·275	1·046	2·060	·620	1·170
After	1·199	1·021	·954	·320	·920

In the case of the mother tongue, on the other hand, an increase of muscular power in the course of the hour was registered in several instances, owing, perhaps, partly to the greater facility which constant habit produces in working at their own language and partly to the greater variation in the treatment of this subject than is usually possible in mathematics.

The appended records were taken on the same pupils of the Realschule as above—

	Pupil A.	B.	C.
Before ...	1·000	0·867	0·765
After ...	1·088	0·927	0·689
and again,			
	1·499	0·561	0·867
	1·882	0·806	0·740

The following refers to pupils of the Primary School—

	Pupil D.	E.
Before ...	0·610	0·800
After ...	0·610	0·800
and again,		
	0·995	0·953
	1·148	1·295

French proved, according to the Ergograph, severer work than the preceding, but not so exacting as mathematics or gymnastics.

In the case of the same Realschule pupils the results were—

	Pupil A.	B.
Before ...	0·958	1·301
After ...	0·911	1·224
again, on same day,		
	1·411	0·927
	1·264	0·816
again, another day,		
	1·676	1·020
	1·619	0·842

In Religious Instruction the results registered corresponded tolerably closely to those taken before and after instruction in the mother tongue.

Natural Science and History also showed recuperation of power in the majority of cases, thus implying a correspondingly slight strain.

Singing and Drawing appeared to make but little demand on the mental powers, except in the case of advanced pupils, who applied themselves with more than usual energy to the work.

To recur again briefly to the current opinion of the favourable influence of change of work, Kemsies points out that the prevalent idea is based to a large extent on a confusion of two very different things: Subjective fatigue or "Müdigkeit," that is, the feeling of physical or mental exhaustion or tiredness, and objective fatigue, or "Ermüdung," that is, the actual fatigue present, which can be more or less accurately gauged by some approved mode of measurement. That subjective fatigue indicates the presence of objective fatigue and that the feeling of exhaustion and disinclination for work is a sign that the system demands rest, is no doubt true in the main, but such is not always the case. Other factors, such as lack of interest in the work in hand, or its monotonous character often tend to produce marked subjective fatigue, even though the objective fatigue is very slight; on the other hand, keen interest in a subject, or pleasureable excitement produced by congenial work or even a mere effort of will, may effectually subdue all symptoms of subjective fatigue for a considerable period of time.

In this respect the Ergograph has proved, as Kemsies observes, "a sure indicator of the actual or objective fatigue," and he adds, "Schoolboys, like adults, are often deceived by their feelings. According to my experiments the subjective fatigue was often in complete contrast to the objective, a phenomenon which may be attributed to the fact that the seat of the feelings is the nerve-centres, and when the nerves are from any cause excited, the sense of fatigue may be partially, if not wholly, repressed for the time being."

As an instance of this the following measurements, taken from a pupil of the Realschule, may be compared with the experimentor's notes on the personal feelings of the boy or his subjective fatigue at the time of measurement.

Date and Time of Measurement.	Objective Fatigue according to Ergograph.	Subjective Fatigue.
Thursday, 2 p.m.: school over	1·02 kgm.	Somewhat tired.
" 6 p.m.: home work finished.	1·224 "	Rather tired.
Friday, 3 p.m.	0·867 "	" "
" 6 p.m.: school ended	0·740 "	" "
Saturday, 8 a.m.	1·173 "	Heavy feeling in the head.
" 2 p.m.	0·867 "	Tolerably fresh (?).
" 6 p.m.	0·842 "	" "
Monday, 6 p.m.	1·275 "	" "
Tuesday, 8 a.m.	2·130 (max.)	Fresh.

Here, as in similar measurements undertaken by Kemsies, considerable discrepancy appears between the subjective and the objective fatigue. On Saturday afternoon, for example, the low

record of the Ergograph in no way accorded with the feelings of the boy. The prospect of the coming day's rest doubtless produced a cheerful frame of mind and caused partial obliviousness of his actual state of fatigue at the time. It is not till Tuesday morning, apparently, that the full effect of the Sunday's rest leaves its mark in a maximum measure for the week.

What, however, appears to call for very serious attention is the *general low muscular accomplishments* of this and many other pupils, as compared with their maximum achievement, a fact which would seem to indicate that the ordinary routine of school-work was incompatible with a sound and vigorous state of health.

In the case, for instance, of the pupil whose measurements are quoted above, the maximum, made on a Tuesday morning, was 2·130 kgm., but the average measurement during the four previous days, excluding Sunday, was about 0·960 kgm.; considerably less than half the maximum.

The case of another pupil of the Third Form of the Realschule in question is peculiarly interesting, as measurements were taken during a fortnight's holiday as well as on several days before and after the same. The boy is noted by Dr. Kemsies as tolerably strong and intelligent, yet the average of measurements taken previous to the holidays was 1·500 kgm., with a minimum accomplishment of 1·285 at nine o'clock on a Saturday morning. During the holidays, on the other hand, the average measurement was 2·350 kgm., with a maximum of 3·285, attained on the day before commencing work again.

In the course of the next ten days, however, the measurements relapse to an average of 1·86 kgm., showing clearly a marked diminution of muscular power as the result of school work.

If the measurements recorded by the Ergograph are to be accepted as a criterion of the mental state of an individual, Dr. Kemsies considers the assertion that the school exercises an unfavourable influence on individual pupils to be fully justified. *Tired,* pupils ought no doubt to become in the course of an average working day, for only so is the habit of doing work readily and easily and of advancing from stage to stage acquired, but *overtired* they should not be, because continued exertion may lead to a permanent depression of the capacity for doing work.

How far Dr. Kemsies' figures may be regarded as indicating over-pressure depends, of course, on the actual connection between cause and effect, the relation which exists between mental fatigue and loss of muscular power, and that can, in our present state of knowledge of these phenomena, only be roughly gauged by comparing with one another the results attained by investigators who have adopted different lines of enquiry into this question.

One fact, however, stands out quite clearly from a perusal of the results of these experiments, namely, that a *boy or girl must possess a certain minimum of physical and nervous force, a definite standard of power of resistance to mental fatigue in order to cope with school-work under its present conditions*

without the risk of temporary, and possibly permanent, injury to health.

The Ergograph shows clearly that the mental strain produced by ordinary school-work on many pupils causes, after a short time, a marked diminution of muscular power, implying a generally enfeebled state of mind and body, liable to lead to permanent injury and loss of health.

Such cases of permanent exhaustion in over-fatigue are easily distinguished from the natural healthy fatigue of the day, which is, or ought to be, completely compensated by the night's rest.

Whether, in the case of such children, or of others who are physically weak, or predisposed to nervous troubles, special arrangements should be made for relaxing the school discipline, or a special class in school formed for their benefit, conducted on easier lines, as has been advocated in one or two quarters, is a matter which would require much consideration, and involve questions of method and management beyond the scope of this paper.

It may, however, be noted that this plan has actually been adopted in a primary school at Zwickau, but whether it has justified its existence is open to doubt.* On the other hand, school work appears to produce little or no loss of muscular power in pupils of average health and strength. Continued experiments have shown that the best working days are the first and second after days of rest or holidays. The effect of Sunday's rest often left its mark as late as the following Tuesday afternoon.

Another important deduction from Dr. Kemsies' investigations is to be found in the relative fatiguing power of the variou subjects of instruction.

Gymnastics and mathematics apparently made the greatest strain on children. Foreign languages and religious instruction considerably less, while the mother-tongue, natural science, geography, and history generally afforded opportunity for recuperation, and singing and drawing, more technical subjects, made as a rule a very slight call on the system. These results have been fully confirmed by the result of enquiries made on other lines. To turn these results to practical account, Dr. Kemsies insists, as several other investigators have done, on the importance of so arranging the curriculum of the school that the subjects which make the greatest demand on the mental power should alternate with those of a lighter character.

By this means not only is greater variety introduced into the scheme of work and the interest of the children thereby more easily maintained, but opportunity is afforded for recuperation during the hours of lighter employment from the fatigue produced by severer studies.

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* Cf. *R. Seyfert*, Die Organisation der Volkschule auf psychologischer Grundlage; Zwickau, 1891; and *Brahn*, Die Trennung der Schuler nach ihren Leistungsfahigkeiten.

Measurements with the Ergograph were also made by Dr. Keller,* who let boys of 13 to 17 years of age read printed matter quickly for 15 to 20 minutes at a time, and tested their muscular power before and after. The results agreed in the main with those deduced by Kemsies; at the conclusion of one hour's employment at this work a marked diminution of muscular power was noted, and one hour's rest was found to be insufficient to insure complete recuperation.

Further experiments made between every school-hour, morning and afternoon, led Keller to infer that the ordinary school instruction exercised an injurious effect on the nervous system of many of the children, which might in many cases prove disastrous to their general health. A full discussion of Keller's experiments is, however, impracticable, as, beyond a *resumé* in an educational paper, no full account of them seems to be procurable.

Part II.—Mental Tests.

The second method which investigators have adopted, and to which more attention has been hitherto devoted than to the other two, consists in setting a certain amount of work of a homogeneous character to be done by children under certain conditions in regard to time. The results are carefully analysed, and from the quality and quantity of the work conclusions are drawn as to the mental capacity and fatigue of the class or individual.

This kind of experiment has, of course, the apparent advantage that the brain is subjected to a direct test, and the employment of muscular exertion as a medium for ascertaining the state of the brain is avoided.

On the other hand, the system presents many more practical difficulties than the one previously discussed.

In exercising a group of muscles until complete exhaustion ensues, a certain definite amount of work is done, and no effort on the part of the individual can force the muscles to do more. The relative capacity for work of the group of muscles at different times is definitely determined, and the uncertainty only comes in when endeavouring to fix some standard of connection between mental fatigue and loss or gain of muscular power, or in eliminating the influence on the muscles of physical work in order to trace the effect of mental work alone.

In endeavouring, however, to apply a direct test to the brain, many factors which conduce to uncertainty in the results have to be reckoned with.

The most prominent of these is, without doubt, the acquisition of facility by practice. Practice increases the mental capacity for work, and enables the individual to do more at each effort up to a certain limit.

Its influence can be traced days, weeks, and even months afterwards; fatigue, on the other hand, if not excessive, disappears comparatively rapidly. Practice is the most powerful opponent

* Keller, Experimentelle Untersuchungen über die Ermüdung von Schülern durch geistige Arbeit. Zeitschrift für Schulgesundheitspflege, 1897, pp. 335-339, and 404-406.

of fatigue because it reduces the liability to fatigue. It is the oil which makes the machine run smoothly.

In many of the experiments of this class the influence of practice, as evidenced by a rapidly increasing quantity of work completed in equal times, is most clearly marked, but deductions as to the influence of fatigue are by no means so obvious.

Again, the question as to what sort of mistakes are to be taken as due to mental fatigue, and what sort as due to ignorance or mere want of attention, has been a prolific source of discussion. And here again the question arises ?—How far is one justified in attributing mistakes due to want of attention to the influence of mental fatigue ?

The greater or lesser degree of energy, too, with which the children under experiment have applied themselves to the tests put before them must always remain a somewhat indeterminate quantity.

It may here be premised that this method of measuring mental fatigue falls under two heads. Either the investigator has set to the class a number of simple operations of a similar character, the accomplishment of which is calculated to occupy about an ordinary school-hour, and has endeavoured to draw from the results of this conclusions as to the effect of school-work generally on children of the same age, or he has subjected them to tests of five or ten minutes' duration at definite intervals during school-hours, and, from the quality of the results, obtained a gauge of the effect of the actual school-work on the mental powers of the children.

The most usual tests employed have been the addition of rows of numbers, multiplication by a single digit, writing sentences of similar character from dictation, reading or learning by heart figures and columns of syllables.

Under the former of these two heads the experiments of Burgerstein, Höpfner, Kraepelin and others fall, while those of Laser, Kemsies, Friedrich, or Ebbinghaus may be taken as typical of the latter.

The first observations of this nature were undertaken by the Russian pedagogue Sikorski.*

Sikorski dictated a number of short sentences to a class of children at the beginning and end of the school-day and compared the number of mistakes made. The result showed a falling off of about 33 per cent. in the correctness of the work.

It has however been objected by later investigators that no mention was made of the length of the dictation, and, it is not stated whether the various sentences dictated were of a homogeneous character, a very important matter, for in order to draw reliable conclusions, the sentences dictated ought to correspond very closely in length, style and difficulty.

In drawing his conclusions Sikorski distinguished errors of inadvertence or slips from actual faults arising from ignorance or

* Sur les effets de la lassitude provoqueé par les travaux intellectuels chez les enfants de l'âge scolaire. 1879. Annales d'hygiène publique. Paris, III. Sér, tome 2.

want of attention; he attributes the former class alone to the effects of fatigue and makes use of them alone in drawing up his table of results. "These are," he says, "fautes involontaires ou inévitables," and as such, "en rapport avec l'exactitude du travail du mécanisme nervopsychique pour un temps donné." On the other hand "Les fautes proprement dites sont exclues du calcul, attendu que leur nombre peut varier indépendamment de la lassitude du mécanisme nervopsychique par suite du plus ou moins de savoir des principes de l'écriture et du plus ou moins d'attention apportée par l'élève, ce qui échappe complètement à toute mesure."

The principle of distinguishing various classes of mistakes in drawing conclusions as to mental fatigue is a much vexed one it has been adopted by other investigators in this method of enquiry but it is more than doubtful if Sikorski's plan of excluding from his calculations all mistakes presumably due to want of attention was a wise one. It is a well ascertained fact that fatigue of the nervous or mental forces manifests itself notably in want of attention and liability to distraction.

Sikorski has given no details of the percentage of mistakes attributable to this cause. Despite these objections, however, his investigations are of interest as being the first attempt to open up a new line of enquiry into mental fatigue.

In Germany attention was probably first drawn to this method by Dr. Emil Kraepelin, Professor of Psychiatry in Heidelberg, who made some experiments of a like nature on adults, the results of which he briefly alluded to in a volume comprising a number of interesting experiments on psychical phenomena.*

These consisted in setting columns of single cyphers to be added without pause for four periods of half-an-hour, with intervals of ten minutes between each half-hour.

When the sum reached 100, the hundred was simply disregarded and the addition of the cyphers continued.

Every five minutes a bell sounded, whereupon the reckoners made a stroke under the last cypher added. By this means the quantity of work done every five minutes was definitely checked. No attention, however, was paid to the correctness of the work.

Kraepelin's experiments were chiefly of interest in showing the important part which practice plays in mental operations.

'The course of all mental work," Kraepelin observes "is to a large extent modified by practice." His experiments showed that the rate of working increased from period to period up to a certain point, and this point varied very considerably in different individuals. But in every case the limit is sooner or later attained beyond which further increase in the rate of working is no longer possible. From this point the increase in speed is overweighted by the ever growing influence of fatigue, and a gradual

* Ueber die Beeinflüssung einfacher psychischer Vorgänge durch einige Arzneimittel. Fischer, Jena.

decrease makes itself perceptible which continues without intermission until complete exhaustion ensues.*

The intervals between the half-hours of work, however, always exerted a favourable influence in so far that the rate of working immediately after any interval was always higher than during the period immediately preceding it, a fact which Kraepelin considers a *strong argument in favour of longer intervals between school-hours*, for while the effects of fatigue are in a large measure dissipated by such intervals, the influence of practice is in no way diminished.

In later publications† Kraepelin has discussed critically the various methods employed by himself and other investigators from the standpoint of the psycho-physiologist and drawn attention to various important points which will be touched upon in the course of this report.

The first to attempt to carry out experiments on school-children in Germany in a scientific manner was Dr. Leo Burgerstein,‡ Professor at one of the Realschulen in Berlin.

While the interest aroused in the question of over-pressure in German schools led to an inquiry into features of school management, the ordinary duration of the school-hour also came under discussion, and much doubt was expressed as to the suitableness of this period of work for younger children. In view of this, Burgerstein undertook experiments with the aim of ascertaining the extent of the fatigue developed in a school-hour amongst younger school-children.

For this purpose Burgerstein made use of an arithmetical test.

Four sets of simple addition and multiplication sums were made up, each set containing ten addition and ten multiplication sums alternating with each other.

The following may be taken as a sample of two such sums—

Add	2 8 7 0 3 4 5 1 6 9 2 7 4 0 8 3 1 5 6 9
	3 5 8 6 9 4 2 7 1 0 8 2 1 5 9 7 6 0 4 3
Multiply	2 8 7 0 3 4 5 1 6 9 2 7 4 0 8 3 1 5 6 9 by 2.

Each set of twenty similar sums was calculated to occupy ten minutes, and at the expiration of each ten minutes five minutes more was spent in collecting the papers and setting the next set, so that the completion of the whole four sets occupied exactly fifty-five minutes, the ordinary length of a school-hour.

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* These conclusions of Kraepelin coincide closely with Mosso's observations:—"Jede Person ermüdet in ihrer besonderen Weise. Jeder Mensch besitzt im allgemeinen einen ihm eigentümlichen Gang der Leistungsfähigkeit, der sich während einer bestimmten Arbeitszeit regelmässig in der gleichen Weise zu gestalten pflegt. Einige Personen zeigen erst nach längerer Zeit eine Abnahme der Leistungsfähigkeit: bei andern ist fast vom Beginn der Arbeit ein Sinken der Leistung zu erkennen. Zwischen beiden Formen beobachten wir alle Formen der Uebergänge; aber jede einzelne Person pflegt im allgemeinen stets das gleiche Verhalten zu zeigen."

† Ueber geistige Arbeit, 1897, 2nd Ed.; Zur Hygiene der Arbeit, 1896; Zur Ueberbürdungsfrage, 1897. Fischer, Jena.

‡ Die Arbeitscurve einer Schulstunde. Dr. Leo Burgerstein. Leipzig: Voss, 1891.

As each sum differed from the others only in the arbitrary arrangement of the figures, there was no variation in the quality or quantity of work in each set of sums.

One hundred and sixty-two children, boys and girls, from one of the primary schools in Berlin, of the average age of eleven and a half and two classes of boys from one of the Realschulen, of ages varying from twelve to thirteen, took part in the experiment.

The work required was, of course, well within the scope of all the children, so that no mistakes could be ascribed to ignorance.

On the other hand, one considerable source of difficulty presented itself in reckoning the mistakes, because one mental error often affected several figures, and where several wrong cyphers occurred in a row it was often difficult to decide whether these were to be attributed to one or to several mental errors.

Burgerstein decided on counting each wrong cypher as one mistake as most likely to contribute to exactness in the results. He also counted the number of the corrections in cases where the right cypher had been written in place of a wrong one

The results of the work done by all the classes which took part may be briefly summed up as follows:—

Set of Sums.	Number of			Percentage of Children who made *no* Mistakes.
	Figures Reckoned.	Mistakes.	Corrections.	
1	28,267	851	370	12·9
2	32,477	1,292	577	4·3
3	35,443	2,011	743	2·7
4	39,450	2,360	968	2·4

In this table there is a remarkable increase in the rate of working, nearly 40 per cent., between the first and last sets. Whether this is altogether to be attributed to the beneficial influence of practice or to some other psychological cause is not quite clear. It may be that the consciousness of not having completed the full number of sums in the first set stimulated the children to greater exertions in the succeeding ones. A more significant fact, however, is the large increase in the number of mistakes and corrections, which is far greater in proportion than the improvement in the rate of working.

The increase per cent. comes out thus:—

—	In Figures reckoned.	In Mistakes.	In Corrections
From 1st to 2nd set	14·8	51·5	58·2
„ 1st to 3rd „	25·3	136·3	162·8
„ 1st to 4th „	39·5	177·3	194·0

From this table it appears that while the improvement in the rate of working was least from the second to the third set, the increase in the number of mistakes and corrections was considerably the greatest at this period.

This result seems to point to the fact that, in the course of the third period the capacity for work had diminished considerably in consequence of growing fatigue, in fact, as Burgerstein says: "Dass innerhalb der dritten Viertelstunde auf dieser Entwickelungsstufe die Fähigkeit, sich ernstlich mit jenem Gegenstand zu beschäftigen, der das organische Materiel bereits vorher beanspruchte, beträchtlich gesunken ist."

Now Burgerstein made a careful analysis of the work of individual pupils, and found that, although in general there was an increase in the rate of working throughout, yet as many as 43 per cent. of those examined showed a decrease in this respect before the end of the hour.

These Burgerstein characterises as the easily-tired children who reach the climax of their working capacity at a comparatively early stage and then gradually succumb to the increasing influence of fatigue.

Such cases were most common amongst the girls' classes of the primary school.

The fact that a relatively large number of children showed signs of diminished capacity for work even before the end of three-quarters of an hour, and in spite of the intervals between the periods of work, is, in Burgerstein's opinion, strong testimony in favour of a reduction of the ordinary working hour in the case of children under twelve or thirteen years of age.

Now, if we accept the results of Burgerstein's enquiries as illustrative of what occurs every day in the ordinary course of school work, we have, as Kraepelin * points out, a truly deplorable picture of the effect of school instruction on young children; we should have, in fact, to believe that after the first three-quarters of an hour, a large and rapidly-increasing number of children were rapidly sinking into a state of mental incapacity (Ermüdungsnarkose) and becoming more and more unfit to apply themselves to the work before them.

It has, however, been pointed out that the conditions under which experiments such as Burgerstein's are carried out, can scarcely be accepted as typical of actual school work in the lower classes. The work done in these experiments makes a continuous and severe strain on the powers of attention, a strain which perhaps would not produce any great fatigue in older pupils, but which is a severe tax on the energies of children of eleven to twelve years, and is seldom or never required of them in the course of an ordinary school-hour.

The children were, in fact, working against time, and doubtless in many cases straining every nerve to accomplish as much as possible. It would scarcely be maintained that this is at all usual in ordinary class work.

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* Ueber geistige Arbeit.

Every teacher will endorse the fact that it needs a very rigid discipline to enforce the full attention of a class on a difficult subject for a whole hour at a time; indeed, it is probable, that if every child were made to give his complete attention for only 40 minutes out of the hour, the strain imposed would very soon result in a general breakdown of the system of work.

Burgerstein himself says: "Man Kann Sitzen und Stillesein bei Kindern erzwingen, man täusche sich aber nicht, sie werden doch in vielen Fällen geistig ausruhen bezw. wenn sie ermüdet sind."

However severe the discipline of the class-room, children will inevitably find opportunities of distraction or simple inattention —nature's safety valve as Kraepelin calls it—which help to relieve the pressure of work.

Theoretically, no doubt, attention and interest on the part of the pupil are expected for the whole hour, but in practice, the degree of attention required varies from moment to moment, as also the object to which the mind of the child is directed; in many cases indeed, it must happen that strict attention is only demanded of the children for a few minutes in the course of the hour, when they are directly questioned by the teacher; at the same time, too, the varied character of the work in a well-conducted class, permits of change in the attitude of the body. Standing up, sitting down, coming up to the blackboard or map, listening, and answering questions singly or together, all these tend to add life and interest to the work in hand.

No reasonable teacher will keep his class employed at the same kind of work for the whole hour, indeed, no subject demands such monotonous handling, while most offer rich opportunities for variation, both in respect to the material itself and to the method of treating it.*

Another point which deserves notice is the monotonous character of the work.

To add up and multiply with small numbers may not in itself be very fatiguing, but the constant repetition of exactly similar operations offering absolutely no variety and calling into play exactly the same mental powers, probably tends to produce fatigue very much sooner than work of a less fatiguing character. One may compare with it the effect on the retina of the eye of

* So Uhlig in his criticism of the methods employed by Kraepelin says:

"Der Unterricht in den höheren, wie niederen Schulen verläuft meist in abwechslungsvoller Weise selbst innerhalb derselben Lehrstunde, ... wie die Objekte der Aufmerksamkeit, so sind mannigfaltig auch ihre Arten und Grade, und in dem Wechsel zwischen diesen liegt der Grund warum am Ende einer vierten Stunde (in mittleren und oberen Klassen auch einer fünften), wenn zugleich angemessene Pausen eintreten, von Ermüdungsnarkose, wenigstens bei nicht abnormen Schülern, nicht gespürt wird."

And Mosso says:

"Die tauglichsten Lehrer sind die, welche niemals übermässig eine Gehirnregion ihrer Schüler ermüden, und dabei verstehen, ihre Aufmerksamkeit einmal hier und einmal dorthin zu lenken, damit dieselbe ruhen und dann gekräftigt auf den eigentlichen Gegenstand zurückkommen kann."

staring rigidly at a fixed point for a minute or two. The only wonder seems to be that signs of exhaustion did not manifest themselves at an earlier stage of the experiment. Had simple problems of an attractive and varied nature been placed before the children, or other measures been taken to sustain their interest and induce them to take a pleasure in the work before them, the results would no doubt have been very different.

Again, it is doubtful if the large increase in mistakes and corrections in the course of the hour is to be put altogether to the score of fatigue.

The very fact that a constant increase in the rate of working took place from period to period would lead us to suppose that in their eagerness to complete the quota of sums set, the children paid less attention to the correctness than to the speed at which they worked.

To practice, in fact, and the consequent increase of speed in working, the deterioration in the quality of the work was in part to be attributed.

In view of these considerations, then, Burgerstein's enquiries, although instructive in themselves, are scarcely to be accepted as final without wide confirmation from the investigations of others who have gone to work on different lines.

They are in any case useful in serving to draw our attention to the severe strain on the system that uninterrupted brain-work at high tension produces in children, even if continued for a comparatively short time, and the absolute need of change and variety in school-work.

A noteworthy addition to our knowledge of these psychological processes in connection with prolonged mental work is to be found in the analyses made by Dr. Höpfner* on the results of a piece of dictation set to a class of 50 boys of the average age of nine years in one of the Berlin Volksschulen. The piece of dictation was drawn up by the rector of the school and consisted of 19 sentences, each of which contained on the average 30 letters. It was set as a test for promotion into a higher class, and occupied more than two hours, an unusual length of time, which, however, Höpfner attributes to the fact that the class contained two pupils whose hearing was defective. Under ordinary circumstances an hour and a half would have been sufficient. One result of the slow rate of dictation, however, was that most of the pupils had short intervals of rest between each sentence. The correction of this work fell to Höpfner, who was struck by the remarkable increase of mistakes in the last half of the dictation and determined to subject the whole to a searching analysis.

We have seen that Burgerstein in his arithmetical tests arranged the sums to be done so that the difficulties to be encountered in each were exactly similar. To adopt a similar method in dictation is scarcely possible. Höpfner therefore hit upon the plan of selecting a certain class of mistakes which might occur and

* *Höpfner*, Ueber die geistige Ermüdung von Schulkindern. Zeitschrift fur Psychologie und Physiologie der Sinnesorgane. 1894. Vol. vi.

obtaining a measure of the *quality* of the work done by dividing the number of actual by the number of possible mistakes, or, what is equivalent to this, finding the percentage of actual mistakes in terms of the possible.

Höpfner observed that, on the average, two to seven mistakes were made for every 100 letters, but the percentage of mistakes varied, decreasing somewhat during the first half-hour, and then increasing rapidly from thence onwards. Thus the percentage of mistakes in the first two sentences was 0·93, in the next two 0·72, thence increasing pretty constantly to 2·7 in the ninth and tenth, and 6·4 in the 19th. In general the mistakes increased one per cent. for every four sentences, and were therefore proportional to the work accomplished, so that the "curve" of the mistakes is in its main features a straight line.

Höpfner attributes the initial decrease of mistakes to the mental excitement at first produced and the general rousing of the mental faculties; as soon as the first effect of this excitement passed off, the influence of fatigue began to be apparent and with the second half-hour a sudden rise in the quantity of mistakes occurred. Now it might be objected that the cause of this variation in the number of mistakes was attributable to the increasing difficulty of the sentences in the course of the dictation. To meet this, however, Höpfner turned his attention to one particular class of mistakes, of which an exact number were possible in the course of the whole piece, and compared the actual mistakes made with the whole number possible to make. And for this purpose he selected the class of mistakes which consists in writing capitals for small letters and *vice versâ*.

Grouping the sentences together, four at a time, the following was the number of possible mistakes:—

690, 782, 598, 598, 552;

and the actual mistakes in each set of sentences made were as follows:—

8, 27, 41, 59, 79.

Whence the percentage of actual to possible mistakes was:—

1·2, 3·5, 6·9, 9·9, 14;

or in round numbers

1, 4, 7, 10, 14.

Here the same fact transpires, that the percentage of mistakes increased in an almost constant ratio, thus bearing out the conclusion arrived at by the foregoing calculation.

The importance of Höpfner's work, however, lies chiefly in his discussion of the psychological and physiological processes which are entailed between the hearing a piece of dictation and the transferring it to writing, and in an analysis of the different kinds of mistakes. He points out that there are three main processes involved—

1. The apperception or assimilation of the sentence.
2. The retention in the memory of the sentence so assimilated till its production in writing.
3. The act of writing it down.

Of these, the first in its beginning at any rate, as well as the last in its final accomplishment, partakes more of a physical than of a psychical character, but between these two physical processes, between the apperception and the reproduction of the corresponding memory picture, various psychical observations take place, outwardly imperceptible, to any one of which, however, mistakes in the final reproduction may be attributed; and again, any word may be reproduced in two ways as a "sound impression," as the child believes that it has heard the word spoken by the teacher, or as a "motorial impression," as it repeats and possibly spells the word to itself; further, the reproduction in writing may take place in two ways, either by direct co-ordination of the sound and motorial impressions of the syllables or by means of mind impressions of the word as seen on paper.

In spite of the complex character of these processes, Höpfner found, in the statistics which he formed from the material at his command, sufficient ground for attributing the mistakes with some degree of probability to one or other of these processes.

In analysing the character of the mistakes, in order to ascertain which of them were to be attributed to the influence of fatigue, he found it convenient to group them into four divisions—

(1) Omission of one element of speech, whether letter, syllable, word, or sentence.
(2) Transposition of any element.
(3) Interpolation of a foreign element.
(4) Substitution of one element for another.

From a psychological point of view this classification has several advantages.

It admits of an unequivocal definition of the mistakes; it depends on external characteristics, which render it possible to allocate every mistake without hesitation to its particular class, and it comprises almost every kind of mistake that can occur.

In the next table the mistakes and percentages of mistakes, per 100 letters, are given for every four sentences.

Sentences.	Total Number of Letters Written.	Mistakes						
		of Omission.		Insertion.		Substitution.		Transposition.
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.
1—	4,754	2	·042	1	·021	12	·252	-
5—8	6,072	7	·091	1	·017	16	·272	1
9—12	4,968	14	·281	6	·120	27	·540	-
13—16	5,750	15	·255	8	·136	21	·367	1
17—19	5,128	31	·609	11	·209	16	·340	1

The mistakes of omission Höpfner considers as of special importance in regard to the psychology of fatigue, as the dropping of a word or letter implies the failure of a psychical operation.

It is worthy of note that of the 69 mistakes classed under this head, only 13 occurred in the first ten sentences, the remaining 56 occurring in the last nine.

In connection with this, a slight digression may not perhaps be here out of place.

Höpfner noticed that of 26 letters left out in the middle of words, 23 were consonants, and of these the letter *t* was dropped 10 times.

This he attributes to imperfect pronunciation in the colloquial language of the children, and the fact that children, especially when they become fatigued, tend to relapse from the pronunciation and spelling learnt at school to the more easy and slipshod style they have been accustomed to from earliest childhood.

For example, the word "enfernt" occurs for "entfernt," a mistake clearly due to the influence of imperfect pronunciation.

In regard to this, Strümpell* says, "If the *school* finds itself encumbered by the habits and customs of speech which the children bring with them, particularly in the Volksschulen, and is consequently unable to exert as much influence as the *every-day talk* and colloquial *language* which the child naturally resorts to outside the class-room, the elimination of grammatical mistakes in the *written* language is still more difficult."

And we may take it that the image which the child forms in its mind of any particular word, is not that of the word as spoken by the teacher, but that of the word as known to himself in his own everyday talk.

The pupil of the Volksschule has in fact two languages. The one the language of his surroundings, which he has learnt from his earliest days, and which as a rule he continues to speak, and the other the language of his teachers; and it is noticeable that a large majority of the mistakes made in writing are attributable to defects in that colloquial language to which he is accustomed. So when the pupil becomes tired, the word-impression as acquired from his teacher, is no longer painted as clearly on his mind as heretofore, and the natural tendency is for the sound-impression (Klangbild) to supply its place, and these latter will naturally, in a state of fatigue, be drawn from the colloquial language which he most readily has recourse to.

A good instance of this occurred in the word "nicht" which occurred in the 8th, 15th, and 17th sentences; in the 8th it was written correctly by all the pupils, in the 15th *nich* was written instead once, in the 17th *nich* was written three times.

Now "nich" in the dialect of the district in question is the colloquial pronunciation of "nicht;" an instance of the fact which is explained by Max Müller as the natural tendency to reduce the expenditure of muscular exertion and of breath in speaking to a minimum.

The mistakes reckoned under the head of insertion also may be regarded as due to a defective psychological process; the additions made by the child denote probably a gradual failure as fatigue gains the upper hand, to reproduce correctly the words as dictated or to assimilate them just as they have been

* Pädagogische Pathologie.

spoken, or as Höpfner puts it, 'Bei dem Assimilationsprocesse des Hörens gewann die assimilierende Vorstellungsmasse ('apperception' of Herbart) immer mehr Uebergewicht über die percipierte."

The substitution of wrong words or phrases Höpfner considers also to be due to a failure of apperception or of the memory, while that of letters frequently reflects the bad pronunciation to which the child is prone.

In general then the analysis showed that not only the total number of mistakes, but also the separate groups of mistakes, when classified in such a way that the question of ignorance was eliminated, increased with tolerable regularity in the course of the dictation.

In grouping these, Höpfner was led to refer certain kinds to definite mental processes and showed that as the work proceeded the mind refused to perform its functions as completely and lucidly as at first, that in fact the influence of the schooling of the mind relaxed its hold gradually and gave way before the deeper influences of outside or home life, a result which might reasonably be attributed to increasing mental fatigue. He also showed that fatigue did not manifest itself until after the expiration of the first half-hour, but increased from that point rapidly and steadily to the end.

In 1894 some experiments were set on foot in the Jena gymnasium by its director, Dr. Richter,* with the object of gaining some insight into the effect of the ordinary work of a school-day on the mental capacity of the children.

These experiments form in principle a connecting link between those of Burgerstein, Höpfner, and Kraepelin, who drew their conclusions from the results of special tests which occupied some considerable portion of time, generally a school-hour, and those initiated by Laser and further developed by Friedrich and Ebbinghaus which investigated the working capacity at various periods of the school-day by means of short and generally severe tasks interpolated in the actual course of school-work.

Richter first subjected two gymnasial classes to an examination during the first school-hour on one day and during the last school-hour on another, and compared the results.

It is perhaps to be regretted, as Kraepelin observes, that the two examinations were not carried out on the same day, so as to obtain a more definite measure of the degree of fatigue engendered in the course of one school-day, on the other hand the ordinary school-work of any one day suffered less alteration by conducting the two examinations on separate days.

The classes selected were Ober- and Unter-Tertia, III(A) and III(B), in which the average age was 13 to 14, and which had the same class-master. III(A) had the reputation of being a somewhat backward and dull set of boys. III(B), on the other hand, were on the whole a bright and intelligent set.

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* Unterricht und geistige Ermüdung von Dr. Gustav Richter. Fries u. Meyer. Lehrproben und Lehrgange. Heft. 45. Oct. 95.

The first tests set consisted of simple algebraical expressions, such as

$$13a - 4b - (5c + 2a) - (6a - 4b) - 2c,$$

which had to be simplified. As regards the quantity of the work done, the results showed an increase of speed throughout both classes, which was maintained almost continuously during both hours of work, the average time taken by the boys in III.(B) for the three sets into which the questions were divided being 14, 11, 9·5 minutes respectively in the first hour of the morning, and 9·7, 9·8, 8·3 in the last hour of the following morning.

As regards quality, the number of mistakes showed a tendency to decrease at first but to increase again after the lapse of two-thirds of the first hour, as well as from the very beginning of the last hour.

They averaged for III.(B):

7·85	5·24	6·58	in the first hour,
3·91	5·43	5·80	in the last hour.

The results from III.(A) showed a steady increase in the rate of working and a steady decrease in the number of mistakes throughout each hour, a fact which seems to point to the production of less mental fatigue in the case of boys of less than average mental capacity than in the case of those of good mental powers, which may perhaps be attributed to the fact that dullards exert themselves less than those of a bright and eager disposition.

It should, however, be added that in the school in which these experiments were carried out an interval of 25 minutes occurred after the first two hours. A break of this somewhat unusual length exercised, no doubt, a beneficial influence on the work of the latter half of the morning.

The improvement, both in speed and in the quality of the work in the last hour of the morning, as compared with the first, is to be attributed, in Richter's opinion, to the influence of practice, while the increase in the number of mistakes made by III.(B) during the last two thirds of the last hour, as compared with the first third, points to the appearance of mental fatigue, though not of such severity as to call for special comment.

Again, Richter set further tests to Class III.(B) during the second and fifth hours of the morning, which consisted in dictating the paradigms of the Greek verbs in $\mu\iota$, which the class had been learning for some time previously, the results of which showed a deterioration of about 25 per cent. in the quality of the work in the last hour.

A more detailed examination of the work done, however, brought to light great individual differences, for whereas some pupils gave evidence of considerable exhaustion in the course of the last hour of the morning, others sent up results which gave no evidence of any fatigue whatever.

Richter also applied the same method to boys of Class V., whose average age was 10 to 11, during the second school-hour.

Here, although the rate of working increased throughout the

hour, there was a very marked falling-off in the quality of it, and certain boys showed signs of considerable fatigue.

In general, Richter's experiments confirmed the conclusion already alluded to, that older pupils have much greater powers of resistance to mental fatigue than younger ones.

Pupils of ten or eleven years of age showed signs of considerable fatigue in the course of the second school-hour, whilst no remarkable deterioration in the quality of the work done was noted in the case of pupils of thirteen to fourteen even in the course of the fourth hour.

Richter's investigations point strongly to the fact, which is emphasised by leading physicians and educationists alike, that for children under twelve years of age, school-hours of fifty to fifty-five minutes in length are unsatisfactory both from a hygienic and pedagogic point of view. His experiments are no doubt open to the same objection as those of Höpfner, Burgerstein, and Kräpelin, though perhaps in a lesser degree, viz., that they are of a somewhat monotonous character and little calculated to stimulate the energies of the children, but rather to deaden their interest.

In discussing the school time-table Richter does not speak altogether favourably of the plan now strongly advocated and largely adopted in Germany of placing all five hours of instruction before the mid-day meal.

He cites the case of the higher schools of the Grand Duchy of Weimar, where out of a total of thirty school-hours, one hour's afternoon work is done four days a week, the remaining twenty-six being allotted to the morning. This plan has proved satisfactory from a pedagogic point of view, but it is doubtful whether on social and economic grounds it would succeed equally in other and larger states.

Richter's experiments did not bring to light the development of any undue fatigue in the course of the school-day, but he lays stress on the necessity of reducing the quantity of home-work to a minimum for younger children, and inveighs strongly against the practice of overburdening them with a quantity of memory work, a point which was referred to in strong terms in the "Preussische Lehrpläne" of 1891.

This, however, is a question bound up with that of examinations and cannot be discussed here.

The next inquiries into mental fatigue were instituted by Herr Laser*, Physician at the Hygienische Universitäts-Institut at Königsberg in Prussia. Laser initiated the second of the two methods previously referred to, namely, that of investigating the influence of the actual course of school work in producing fatigue by short tests applied between the ordinary hours of

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* *Laser*, Ueber geistige Ermüdung beim Schulunterricht. *Zeitschrift für Schulgesundheitspflege*. 1894, pages 2-22.

work. These were carried out in one of the Volksschulen in Königsberg.

Each test occupied ten minutes and consisted, like Burgerstein's, of alternate addition and multiplication sums.

In the curriculum of the school harder subjects alternated with lighter ones throughout, so that no two subjects which entailed severe application on the part of the children occurred in successive hours.

There was an interval of five minutes after the first hour, fifteen after the second, five after the third, and ten or fifteen according to the class after the fourth.

The children examined were in their fourth or fifth school-year and of the average age of eleven to twelve. Unfortunately, the work set for the tests seems to have been either much too long or else not sufficiently understood by the children, for in no case were more than half of the sums set completed, and in many cases only a very small proportion were attempted.

Some general deductions were, however, drawn by Laser from the work sent in. He found that the number of figures reckoned increased each time, the average number being:—

in the 1st	2nd	3rd	4th	5th tests.
154·5	180	191	194·5	203 respectively
or 37	43·5	46	48	49 per cent. of the total number of figures.

a result attributable, as in previous enquiries, to the influence of practice.

The quality of the work was also by no means unsatisfactory. The average number of mistakes for each child was:—

in the 1st	2nd	3rd	4th	5th tests.
5	6·5	7·5	8	7·3 respectively
or 3·3	3·6	4	4·8	3·6 of the figures reckoned.

Curiously enough, a decided improvement in quality took place in the last test, between the fourth and fifth hours of the morning's work.

Laser attributes this to the arrangement of the curriculum and to the favourable influence of the intervals between the hours.

From these observations, Laser draws the general conclusion that a certain amount of fatigue is developed amongst children of this age in the course of a morning's work of five hours, but that there is nothing to show that this is anything considerable or more than might be reasonably expected.

The plan of working children of eleven to twelve years of age for five hours in the morning to the exclusion of afternoon work, would appear according to these results, to exercise no ill effect on them, where, as in this case, the curriculum permits of the inter-

polation of lessons of a lighter character between those of a severer nature, and of intervals of suitable length between each lesson.

Dr. Kemsies'* enquiries, which were conducted in 1895 in the 4th class (third school-year) of a Volksschule in Berlin, differed from those of Laser materially in the fact that the rate of working was fixed, and attention directed only to the *quality* of the work done. The influence of practice was thus to a certain extent eliminated, or, perhaps it would be more correct to say, the necessity of taking into account the connection between the quality and quantity of the work done in deducing conclusions was done away with.

Kemsies pointed out that the application of simple mental tests, such as those employed by Burgerstein and Laser, which depend only on the almost mechanical association and reproduction of familiar notions, ought not to be accepted as a gauge of the state of the mental faculties as a whole; he therefore proposed to obtain a more genuine test of fatigue by setting tasks which made a severer demand on the mental faculties.

Accordingly the tests set were selected from what was considered to be the severest task to which the children were accustomed, namely, mental arithmetic. Each test lasted only twelve minutes in each hour, so that the children may be supposed to have maintained a lively interest in them during the short time involved.

The average age of the class, which consisted of fifty-seven boys, was ten and a half, and the school hours were from 8 to 1 o'clock in the morning, the afternoons being free from work.

The following is a sample of one of the tests set, each sum being of a kind in which the children had already had some practice in the ordinary course of school work.

1. Addition. $417+338$; $234+592$; $345+479$.
2. Subtraction. $563-328$; $725-453$; $843-658$
3. Multiplication. 75×8; 139×5; 247×3.
4. Division. $291\div7$; $385\div8$; $476\div6$.

These were set in the middle of the ordinary school-hours, so as to obviate the influence of any disturbing factor such as temporary excitement or impatience, which might influence the children at the end of an hour's work.

A fixed period of time, generally a minute, was apportioned to each sum, though in some cases this was prolonged to $1\frac{1}{4}$, $1\frac{1}{2}$ or 2 minutes, in order to determine the effect of longer pauses between each effort on the general result. The method employed was the following:—The teacher first read out the sum, which was twice repeated by the children in concert; this occupied ten seconds.

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* Arbeitshygiene der Schule auf Grund von Ermüdungs-messungen: von Dr. Ferdinand Kemsies. Berlin: Reuther und Richard, 1898.

The sum was then worked out by the children in their heads, for which 20 seconds more was allowed, and the result was finally written down by each one.

The results of some of these tests are here given. The figures represent the percentage of the actual in terms of the possible mistakes.

Date.	Time.				
	8.30	9.30	10.30	11.30	12.30
Thursday, 31 Jan., 1895 -	30·3	—	42·0	42·5	—
Saturday, 2 Feb., 1895 -	—	—	—	—	50·2
Monday, 4 Feb., 1895 - -	37·0	—	—	35·6	—
Thursday, 7 Feb., 1895 -	36·0	46·7	—	—	—
Saturday, 9 Feb., 1895 -	—	30·3	27·5	—	32·0
Wednesday, 13 Feb., 1895 -	—	28·2	40·0	—	39·5

The higher figures in the first four days quoted above are due to the fact that one minute only was allowed for each sum, while on the two last days a minute and a half was given.

From these results Kemsies concludes that the general average of mental fatigue is not excessive.

It is curious that the percentage registered on Monday morning at 8.30 seems to point to an initial higher degree of fatigue than on the previous Thursday.

Kemsies is, however, inclined to attribute this to the disinclination for work and tendency to distraction often observed after a day's rest, which, however, soon disappears in the course of the ordinary routine of work.

On the whole the first school-hour in each day affords the most favourable results, the last the most unfavourable, while the first two days in the school week are distinctly influenced by the store of energy developed during Sunday's rest, a fact which Kemsies also noted in his experiments with the Ergograph.

The effect of a fatiguing hour's work made itself noticeable in the higher percentages obtained in the succeeding hour, even when the latter was devoted to work of comparatively light character, when and lastly, a slower rate of working produced almost uniform improvement in the quality of the work. So far Kemsies' investigations agree tolerably closely with those of other investigators without adding anything of importance to our knowledge of the subject, but the interesting part of his work lies in his careful examination of the *individual* accomplishments of the members of the classes tested.

This analysis brings to light some astonishing differences in the working powers of different children, and shows that the results of the classes, as a whole, afford but little clue to the working powers of individuals, A consideration of the following table will confirm this.

The figures quoted are the numbers of mistakes made by each of twenty-two children selected from the lower half of the class referred to in the preceding table.

Child.	Date.			
	Thursday, 31 January, 1895. Time.			Saturday, 2 Feb., 1895. Time.
	8.30	10.30	11.30	12.30
1	7	7	6	7
2	8	8	7	8
3	11	12	12	12
4	1	1	2	3
5	6	6	7	7
6	10	10	9	8
7	12	11	11	9
8	7	4	3	5
9	8	6	4	9
10	7	6	8	5
11	7	5	8	6
12	3	7	6	6
13	3	7	2	6
14	6	7	4	7
15	8	8	2	6
16	6	6	4	10
17	3	5	5	4
18	3	7	7	8
19	4	8	8	6
20	7	12	12	10
21	2	6	8	8
22	3	3	4	9

The characteristic traits of individual children stand out prominently here.

Numbers 1,2,3,6 and 7, for example, appear to develop no fatigue in the course of a morning's work. 4 and 5, too, show but slight deterioration. 9 apparently attains his best working powers in the middle of the morning. On the other hand, 20 and 21 show a rapid falling-off from the first hour onwards, implying "a steady increase of mental fatigue induced by the previous instruction." Again, when the above table is compared with others compiled on the same method, it appears that as a rule the same pupils exhibit the same characteristics in regard to capacity for work and susceptibility to fatigue on every occasion. For instance, 8 showed an almost constant tendency to attain his maximum capacity for work in the middle of the morning.

Such a curve characterizes a considerable number of children and may in Kraepelin's opinion be attributed to the nervous stimulus—"Arbeitsanregung," which work produces at first, and which incites the mental powers at first to strong efforts and suppresses symptoms of fatigue.

Nos. 12, 13, 14, on the other hand, exhibit exactly contrary characteristics. An early maximum has in their case been

followed by a period of depression, which, in turn, has given place to a second increase of mental energy at a later period of the morning.

In general these tests would seem to show that "at ten o'clock, after two hours of school-work, one-third of the children have already attained the maximum of their working powers, one-third are still on the upward grade, while the remainder are passing through a period of depression preceding a rise to a second high level. At eleven o'clock no less than half have already passed their maximum, only one-fifth have not yet reached it, and the remainder are approaching the second maximum."

"At twelve o'clock, two-thirds of the children have passed their maximum, only the remaining third being still in a position to attain a higher level of work." Here then, if work is to be continued for a fifth hour in the morning, an interval of considerable length is, Kemsies thinks, of great importance, but he considers that for boys of the age of the class under consideration, the results seem to point to the inadvisability of prolonging the school-day beyond four hours.

Kemsies then goes on to draw attention to the influence of practice on the quality of the work done. Here again he brings to light marked differences in the mental qualities of the various children.

It appears, for instance, from a comparison of the mistakes made in the same hour of the morning in the course of successive days, that while some children, like No. 3 in the foregoing table, experience no improvement under constant practice, others, like No. 8, improve very rapidly. The general average of mistakes, however, showed but slight reduction in the course of fifteen days, although the children had constant practice at this kind of work during that time. In fact children who are soon fatigued seem to possess but a slight capacity for improvement through practice, while those naturally endowed with greater power of resistance to fatigue as a rule show much greater improvement after practice.

Kemsies' experiments then, both with the Ergograph and by the method described above, served to give prominence to the marked difference in the behaviour of different pupils of the same class under the influence of school-work. He maintains that the question of over-pressure in schools must be based on a study of the individual rather than on that of the class as a whole, as in every class there are certain types for whom special treatment is necessary under the existing system of instruction.

In 1897 Dr. Johann Friedrich* published an account of some very thorough and carefully-planned enquiries which he had conducted in a class of one of the primary schools in Würzburg.

Like Kemsies, Friedrich confined himself to ascertaining only the quality of the work done, sufficient time being allowed for each boy to complete each item of the tests set.

* Untersuchungen über die Einflüsse der Arbeitsdauer und der Arbeitspausen auf die geistige Leistungsfähigkeit der Schulkinder.

Instead, however, of making use of tests which involved a more or less severe strain on the intellect, he had recourse to simple dictation and arithmetic as employed by Höpfner and others.

Friedrich mentions that he kept three objects in view in his investigations; to enquire into

1st. The relation existing between the mental capacity at any time and the previous length of time devoted to mental work.

2nd The influence of the length of the school-hours at present in vogue on the mental capacity of school-children.

3rd. The effect of intervals between the hours of work.

It is the carrying-out of this last object which lends special interest to Friedrich's publication, and the thorough investigations which he made with this end in view have resulted in a valuable addition to our knowledge of the best hygienic conditions for school-work.

All Friedrich's experiments were made on the same class of boys, in which the average age was 10 years, first with set pieces of dictation and at a later period with simple sums made up in a similar way to those which Burgerstein and Laser made use of.

During a period of six weeks Friedrich experimented on this class at least once at the beginning or end of every school-hour, and compared the results obtained where no intervals had occurred between the hours with those where one or more intervals had occurred.

Thus he subjected his class to the dictation test:

1. At 8 a.m.; before the commencement of morning work.

2. At 9 a.m.; after the first morning hour.

3. At 10 a.m.; after the second morning hour, an interval of eight minutes having occurred between the two previous hours.

3*a*. At 10 a.m.; after the second morning hour, without any interval previously.

4. At 11 a.m.; after the third morning hour, two intervals of fifteen minutes each having occurred between the previous hours.

4*a*. At 11 a.m.; one interval of fifteen minutes having occurred between the second and third hours.

4*b*. At 11 a.m.; no interval having occurred between the three morning hours.

5 At 2 p.m.; before commencement of afternoon work.

6 At 3 p.m.; after the first afternoon hour.

7 At 4 p.m.; after the second afternoon hour, an interval of fifteen minutes having occurred between the two preceding hours.

7*a*. At 4 p.m.; after the second afternoon hour, no interval having occurred between the preceding hours.

Afterwards he applied the arithmetical test to the children at the same times and under the same conditions, with the object of corroborating, if possible, the previous results.

The pieces of dictation set were drawn up in such a way as to offer as nearly as possible the same difficulties throughout. Each consisted of twelve sentences, and contained almost precisely the same number of letters. The sentence "Das Haus ist mit Ziegeln bedeckt" may be taken as a sample.

Following Höpfner's classification, Friedrich counted every omission or insertion, as well as ordinary misspellings, as one mistake.

Every piece of dictation occupied thirty minutes, every sentence two and a half.

Each sentence was first read out by himself, then repeated by one or two pupils, and, at a given signal, written down; at the expiration of two minutes and a half a fresh sentence was read out.

On account of slight, perhaps almost unavoidable, inequalities in the inherent difficulty of the sentences, Friedrich found it advisable to combine the mean percentage of mistakes made in each set of four sentences and compare the results thus obtained.

In this way the results of the dictation tests may be summed up in the accompanying table:

Experiment.	Time.	Intervals.	Average Percentage of Mistakes in each four Sentences.			Total Number of Mistakes.	Average Percentage per Pupil.	Out of 51 Pupils Number who had no Mistakes.
			1.	2.	3.			
1	8	—	0·217	0·206	0·212	33	0·647	37
2	9	—	0·229	0·320	0·634	58	1·137	31
3	10	One of 8 minutes, at 9 o'clock.	0·482	0·700	0·866	103	2·019	18
3a	10	—	0·769	0·372	1·537	133	2·607	14
4	11	Two of 15 minutes, at 9 and 10 o'clock.	0·415	0·559	0·884	96	1·882	18
4a	11	One of 15 minutes, at 10 o'clock.	0·542	1·219	1·162	152	2·980	12
4b	11	None . . .	0·470	1·257	1·295	162	3·176	10
5	2	—	0·091	0·185	0·392	35	0·686	33
6	3	—	0·482	0·812	1·172	127	2·490	15
7	4	One of 15 minutes, at 3 o'clock.	0·438	0·466	0·798	87	1·785	22
7a	4	None . . .	0·706	0·739	1·699	166	3·254	10

An examination of these results gives a tolerably clear index to the mental state of the children during the different stages of the day's work.

Fatigue first shows its effects distinctly in the course of the second dictation at nine o'clock.

This dictation was given after an hour's arithmetic, half of which was mental and half written work, and although the average percentage of mistakes in the first four sentences dictated shows but a slight rise over those obtained from the dictation before the beginning of school-work, yet it increases almost three-fold in the last four sentences, showing that the

result of the hour's arithmetic and half-hour's dictation immediately succeeding has induced a rapidly increasing state of fatigue.

The third dictation, which was given after two hours' school-work at arithmetic and Bible history respectively, between which a pause of eight minutes occurred, shows at the very beginning the presence of no inconsiderable fatigue, which increases in the course of the dictation. The number of pupils who made no mistakes has sensibly decreased.

Dictation III*a* was given a week later, under the same conditions of work, except that no interval had occurred between the first and second hours.

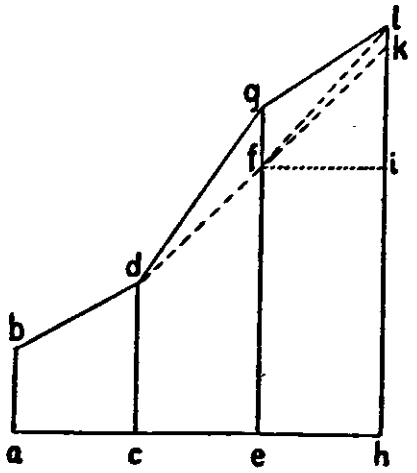
A comparison of dictations III. and III*a*. is instructive, as showing the favourable influence of an interval, even though short, between the first and second hours.

Similarly we may compare the percentages obtained from dictations set at 11 o'clock at the conclusion of the morning's work, with regard to the favourable influence exercised by intervals from work.

The most favourable results were obtained when two intervals of 15 minutes each had been interpolated between the three morning hours.

In this case the percentage obtained from the last four sentences dictated was not much higher than the corresponding percentage obtained at nine o'clock, two hours previously.

The favourable influence of the intervals between the hours of work may be graphically represented by the accompanying figure, in which the abscissæ represent the different dictation tests at intervals of an hour's work, and the ordinates are proportional to the percentage of mistakes to letters in each dictation.



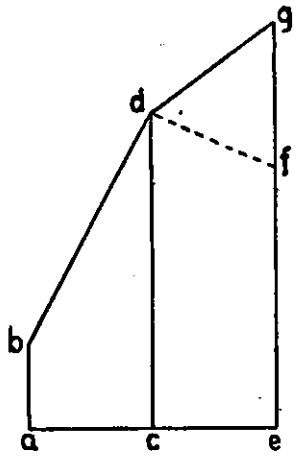
ab. Dictation I.		*ki.* Dictation IV.	
cd. " II.		*hk.* "	IV*a*.
ef. " III.		*hl.* "	IV*b*.
eg. " III*a*.			

Influence of the intervals shown by *fg*, *il*, *kl*, *ik*.

Between these dictation tests and the following ones, undertaken in the afternoon, an interval of three hours occurred. This time, as is usual in German houses, would probably be taken up by the chief meal of the day and rest or moderate exercise after it. The results of dictation V. are on the whole favourable, although the increased percentage in the last third of the work shows perhaps that the effect of the morning work is not quite effaced by the three hours' interval at mid-day.

Dictation VI. is decidedly interesting as showing the fatiguing effect of an hour's gymnastics which preceded it. So marked is the loss of mental power that the results of dictation VII., which succeeded an hour's copy-writing and singing, are distinctly more favourable. An interval of 15 minutes occurred, however, between the two hours, which doubtless contributed in no small measure to a recuperation of mental energy, Dictation VII*a*. again gives unmistakable testimony to the unfavourable symptoms of fatigue induced by two hours of afternoon work without an intervening rest. The percentage drawn from the latter third of this dictation gives evidence of fatigue almost bordering on exhaustion, if we are to assume that the work was honestly done and not scamped, and that the attention of the children was wholly devoted to the work in hand and not distracted by the fact that the day's work was nearly over.

Appended is a figure showing the result of the interval on the work done during the latter of the afternoon hours.



ab. Dictation V.
cd. „ VI.
ef. „ VII.
eg. „ VII*a*.
fg. Influence of the interval.

Friedrich now subjected his class to tests for fatigue by means of addition and multiplication sums on lines exactly similar to those adopted by Burgerstein and Laser.

For every test five addition and five multiplication sums were set, of which the following may be taken as samples:—

Add 27581340693501894726
69413258070769412835

Multiply 27583140693501894726 by 5

Twenty minutes were allowed for each set of ten sums, a period sufficient for every pupil to complete the work, so long

as his mental powers were not exhausted. These tests were carried out in the same manner as the previous dictation exercises, and the results corresponded closely with those obtained by former investigators who made use of this method. In order to show the relation between the quality of the work done and the time worked, Friedrich divided the work done into equal halves and calculated the percentage of mistakes to figures worked in each portion. The result showed that in every case the number of mistakes in the second half greatly exceeded that in the first.

This appears clearly in the appended table, in which the numbers of the tests refer to the same hours and the same conditions as those given for the dictation tests above.

Test.	Percentage of Mistakes.	
	First Half.	Second Half.
1 - - - -	0·939	1·617
2 - - - -	1·047	2·444
3 - - - -	1·387	2·517
3*a* - - - -	1·307	2·772
4 - - - -	1·427	2·458
4*a* - - - -	1·790	2·680
4*b* - - - -	2·017	2·542

In other respects the results confirmed those obtained by the application of dictation texts. From these investigations Friedrich draws the following conclusions:—

1. That the quality of the work done almost invariably deteriorates according to the length of time worked, and this deterioration sets in from almost the very commencement of working, and increases to a very noticeable extent in the course of twenty minutes' steady application.

2. That a marked falling-off in mental capacity makes itself evident in the course of the ordinary school working day. The poorest results were obtained at the conclusion of an unbroken morning's work of three hours, and of an unbroken afternoon's work of two hours. The mental capacity for work was clearly less in the afternoon than in the morning, as the rapidly increasing percentages of mistakes obtained from the results of the tests set in the afternoon hours clearly show. The three hours interval at mid-day was, in fact, insufficient for full recuperation of the mental powers. In regard to this point, Friedrich's results agree with those of Griesbach.

3. The intercalation of intervals between the hours exercised a most beneficial influence on the quality of the work. By far the best results were obtained when every hour's work was succeeded by a pause of a quarter of an hour.

This is perhaps the most pregnant result attained by Friedrich's experiments. Especially for young children, such as those on which the experiments were made, does it seem a matter of great consequence to avoid the extreme exhaustion which, according to these results, appears to be produced by long periods of work without intervals of rest.

Friedrich has clearly corroborated the results obtained by other investigators in showing that steady mental application soon produces symptoms of fatigue in young children, and he like others, moots the question whether the shortening of the usual length of the school-hour—usually fifty to sixty minutes—would not be a source of gain rather than loss, in avoiding the strain which the longer period of instruction seems to impose on younger pupils, and thereby maintaining a more even and higher quality of work throughout the school working day.

The latest enquiries into this subject were undertaken by Professor Ebbinghaus,* in Breslau, at the instance of the "Schlesische Gesellschaft für vaterländische Cultur."

For this purpose Ebbinghaus had two complete schools placed at his disposal, a boys' gymnasium, and a girls' high school.

The experiments were carried out in every class of each school, so that an abundant wealth of material was collected from which to draw conclusions, while apart from the main end of the investigations, a highly interesting feature of Ebbinghaus' work lay in a comparison of the achievements of classes of the same average age in each school. Ebbinghaus followed the plan initiated by Laser, of setting tests of ten minutes duration to the classes before or after every school-hour.

Amongst several tests of which Ebbinghaus availed himself in his experiments, Burgerstein's dictation and arithmetic tests come first, and the results of these corresponded pretty closely with those previously obtained by other investigators. In the first two hours the speed of reckoning increased, attained its maximum generally in the third hour, then fell off towards the end, though sometimes rising again in the last period. The number of mistakes increased steadily to nearly two-fold towards the end. As was however pointed out in the case of Burgerstein's experiments, the effect of the monotony of the work on the children is an unknown quantity, though probably not an inconsiderable one, and must detract considerably from the value of any conclusions which may be drawn from the results.

Ebbinghaus also made use of what is known as the "Memory Test."† This consists in reading out to the class at a definite rate a list of single cyphers, which are then written down by the children from memory.

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* H. Ebbinghaus, Ueber eine neue Methode zur Prüfung geistiger Fähigkeiten und ihre Anwendung bei Schulkindern.

† This method has been employed in investigations into the mental powers of children, apart from the question of fatigue. *Cf.* Jacobs, Experiments on Prehension. Mind XII. p. 75, 1897; and Th. L. Bolton, The Growth of Memory in School Children. American Journal of Psychology, IV., p. 362. 1892.

Ebbinghaus read out ten such lists, of which each set of two contained 6, 7, 8, 9, and 10 cyphers respectively. The lists were graduated in this manner on the supposition that to remember and write down a list of six cyphers is not a too difficult task for a child of eight years old, the age of the children in the lowest classes examined, while to reproduce ten cyphers correctly should prove a sufficiently hard task for the members of the highest classes.

Considerable doubt has, however, been cast on the accuracy of this supposition.

Experiments instituted by Dr. Schiller in the boys' gymnasium in Giessen went to show that for the second class of the preparatory school containing boys of the average age of eight and a half, the task of reproducing six cyphers from memory correctly was too difficult.

Ebbinghaus found that the number of children who did this correctly was, on seven successive days, 11, 48, 44, 30, 48, 44, 77 per cent. of the whole class, or an average of 43 per cent; a result which seems to justify amply the opinion that the task chosen was too difficult to be a fair test of fatigue, while the remarkable increase in the number of those who did the task correctly in the course of seven days is a striking example of the influence of practice, and renders the task of extracting trustworthy data by this means in regard to the fatigue of a school-day still more difficult.

The memory method is also open to the same objection which has been noticed by Kraepelin in regard to the previous tests, namely, that the mental operations involved are of too simple a character to afford a reliable clue to the mental state as a whole. Only certain faculties of the mind are called into play and those not of the highest order. The memory plays no doubt an essential part as the basis of all higher intellectual activity, but is, after all, only a basis, and in its simplest manifestations often directly opposed to more complicated and higher intellectual processes. Marked capacity for mechanical reproduction from memory is frequently accompanied by weak powers of perception and judgment, and it is therefore open to doubt whether tests based on the exercise of memory alone can be accepted as a guide to the mental capacity and the influence of fatigue in reducing the same. Ebbinghaus, in the results of the application of the "Memory Test," actually found that in each class the advantage in reckoning lay generally with the lower and presumably less intelligent half of the class, that in fact, in simple memory work, the mentally weaker pupils displayed superior powers.

A third and hitherto untried method was also made use of by Ebbinghaus with the special object of calling into play as far as possible the higher intellectual faculties.

This he characterised as the "Combination Method." As the first essay of its kind its employment was necessarily of a more or less tentative nature. It consists in placing before the class to be examined pieces of prose in which certain syllables, letters or

works are omitted. These the pupils had to supply according to their powers of judgment, and with due regard to the context. Here are the first few lines of a piece selected from "Gulliver's Travels," and arranged as a test for the lower classes of the schools examined. Nach langer Wand — — in dem fremden Lande fühlte ich — so schwach, dass ich — — Ohn — nahe war. Bis — Tode — mattet s— ich ins Gras nieder und — bald ein, fester als — mals in — Leben u. s. w.

Each dash stands for one syllable omitted. The piece selected for the three higher classes was of a somewhat more difficult character with more frequent omissions.

One distinct advantage in this kind of test is to be found in the fact that its novel character, and the absence of a repetition of similar figures or numbers, tended to eliminate the influence of practice and the depressing effect of work of a monotonous character.

On the other hand it is open to doubt whether it is not, on account of its very novelty, and of our ignorance of the mental attitude in which different children would approach such a task, a somewhat unreliable guide to the state of the mental powers.

Ebbinghaus himself allowed that lack of interest or other causes induced some of the children to write down any nonsense that came into their heads, and take no trouble to supply the omissions with reasonable regard to the context.

The test, however, was unquestionably successful in bringing to light the difference in the mental capacities of the upper and lower boys of each class, thus showing that it made a real demand on the higher mental faculties, and attained to a certain extent the end for which Ebbinghaus devised it.

As regards the main issue of the test, the determination of the fatigue engendered by school-work, the best results were attained at the first trial, at the beginning of the school-day; from thence the character of the work done in the middle and upper classes deteriorated more or less, but with considerable variation, often rising again to a comparatively high level in the last trial at the end of the morning's work, while the number of mistakes increased on the average to twofold, a result which in Ebbinghaus' opinion does not point to any severe depression of mental power. On the other hand he throws some doubt on the expediency of a morning's work of equal length for younger children, as the results of the test in the lower classes showed a very considerable and steady deterioration from the beginning of the day's work to the end.

Whether or not this conclusion is fully justified can only be determined when fuller investigations have proved the efficacy of this means of testing the comparative mental power of children, and when the results of these are taken in connection with those drawn from other and equally important sources.

The Third Method, by Means of the Aesthesiometer.

The measurement of mental fatigue by means of the sensitiveness of the skin—*Tastsinnes-* or *Sensibilitäts-Messungen.*

This method was introduced by Professor Griesbach, of Mülhausen, in Alsace,* and on account of the comparative exactness possible in the measurements, the apparently close connection between mental fatigue and sensitiveness of the skin, and the ease with which the measurements can be made, it seems likely to supersede all previous methods.

Our skin is the organ of local sense. When any portion of it is touched a certain irritation of the nerves is set up, the sensation of which is conveyed to the brain and enables us to distinguish the spot. If, however, two adjoining spots are touched at the same time, it is not always possible to recognise two separate impressions on the nervous system.

Different parts of the body, too, exhibit widely different keenness of perception in this respect. The degree of sensitiveness of any part is gauged by applying the two points of a compass to it, and moving them either apart or together, until that particular distance is arrived at, at which the two separate sensations are just indistinguishable as such, when the eyes are kept shut. This distance gives the measure of the sensitiveness of the skin at that spot.

That this sensitiveness is very different, at different parts of the body, will be gathered from the following table, based on the average of a number of measurements taken in the manner just described.†

	Critical distance.
Tip of the tongue	1 millimetre.
Red upper lip	4 "
Tip of the nose	7 "
Palm of the hand	11 "
Skin over the knuckles	17 "
Lower part of the forehead	22 "
Shin	39 "
Breastbone	44 "
Lumbar region	52 "

Now the absolute values of these measurements are found to be by no means the same in different individuals, and practice has the effect of rendering the delicacy of perception keener, but the relative sensitiveness of the different parts of the body is found to be strikingly constant, so long as the individual is not mentally fatigued.

Moreover, certain regions are much more susceptible to loss of sensitiveness in consequence of mental fatigue than others, the

* *Griesbach*, Energetik und Hygiene des Nervensystems in der Schule.
† *Ranke*, Der Mensch. Leipzig, 1887, p. 554.

cheekbone and forehead in particular being peculiarly good indexes in this respect.

On every part of the body, then, there is a certain maximum "sensation area" — "*Empfindungskreis*" — within which the sensation of two points is only realised as one.

From a physiological point of view, these "sensation areas" are regions of the skin within which the nerve threads which furnish it are so closely connected that although they convey separate impressions to the brain when excited separately, yet the difference in the impressions is so slight as to be indistinguishable when different points of the region are touched at the same time.

Now in order to realise impressions on the skin a certain state of consciousness is necessary, and it is clear that all factors which restrict or promote the activity of our consciousness must influence the delicacy of our perception of such impressions and consequently affect the size of the sensation area.

Close attention diminishes the latter, failing attention increases it, and so Griesbach finds that "mentally fatigued persons who, as exhaustion increases, lose their power of attention, exhibit a corresponding increase in the size of the sensation area, and thus the "Aesthesiometer," as the specially designed compass is called which is used in these experiments, proves a reliable gauge of the degree of mental fatigue.

Proceeding from this standpoint, Griesbach ascertained the increase in the size of the sensation area after mental work in various parts of the body including the forehead, the cheekbone, the tip of the nose, the underlip, the ball of the thumb, and the tip of the index finger. The experiments were very carefully carried out and in each case the distance between the points of the "Aesthesiometer" was gradually increased until the greatest distance was reached at which the impressions of the two points produced the sensation of only one.

In order, too, to gain some notion of the degree of fatigue produced by various kinds of brain work the experiments were not confined to pupils of the various classes of the Oberrealschule and Gymnasium in Mülhausen but were extended to other persons such as clerks in business or counting-houses, young men engaged in trades and to those who have to give their attention to the working of machinery while performing physical work at the same time.

In addition, various masters at the schools were subjected to the test before and after the day's work, and one school inspector also underwent it before and after acting as examiner at one of the schools.

Griesbach had also the opportunity of applying the tests to boys who were in for the examination to qualify them for one year's military service.

The tests were applied in the schools not only before and after every school-hour, but also on Sundays and holidays with a view to determine the normal sensitiveness of the skin; and the results of measurements taken at various hours on these days

showed that the deviation from the normal during a day of rest was very slight.

The direct and unmistakable influence of severe mental work in lowering the sensitiveness of the skin may be gathered from the following experiment.

R. H. is a pupil in the upper third of the Mülhausen Oberrealschule, 13 years old, whose skin sensitiveness was tested at 4 o'clock on a school holiday, on which he had done no previous brain work, and at 5 o'clock after one hour's private instruction in mathematics which involved making geometrical constructions and reckoning in his head.

——	Four o'clock.	Five o'clock.
1. Forehead - - -	3·5	10·5
2. Tip of the nose - -	2	4
3. Red of the lip - -	1·5	2·5
4. Cheekbone - -	5	13·5
5. Ball of the thumb -	4	8
6. Tip of the finger - -	1·5	2·5

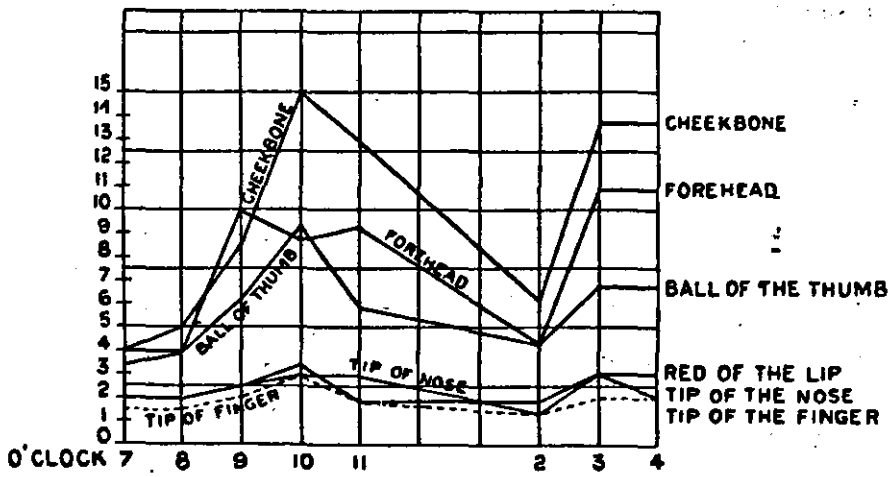
The next table gives the measurements taken from a pupil of the fifth class aged eleven years, of average physical and mental powers, the first column being the measurements taken at 12 o'clock, at the conclusion of the 5 hours' morning work in school, broken by intervals of 10 to 15 minutes between each hour, and the second at 4 o'clock, after 4 hours rest from mental work.

——	Twelve o'clock.	Four o'clock.
1 - - -	13	4
2 - - -	4	2
3 - - -	2	1
4 - - -	12·5	5
5 - - -	9	3
6 - - -	2	1

The next measurement is from a boy of good health, average capacity, and fair industry, selected from among a number of measurements taken in the fifth class of the Oberrealschule.

Table of Work - - -	7—8 Natural History.		8—9. Arithmetic.	9—10. Geography.	10—11. Gymnastics.	11—12. Free.	2—3. Arithmetic.		3—4. Practical Work.	Sunday.
Time of Measurement -	7.	8.	9.	10.	11		2.	3.	4.	11.
Forehead - - - -	3·5	4	10	9	Considerably heated. 9·5	-	4·5	11	11	3·5
Tip of the nose - - -	2	2	2·5	3	3	-	1·5	3	3	2
Red underlip - - -	2	2	2·5	3·5	2	-	2	3	2	1·5
Cheekbone - - - -	4	5	9	15	13	-	8	14	14	3·5
Ball of the right thumb -	4	4	6	10	6	-	4·5	7	7	4
Tip of the first finger - -	1·5	1·5	2	3	2	-	1·5	2	2	1

If we make the hours of measurement the abscissæ, and the values of the measurements the ordinates of a system of co-ordinates, the different degrees of sensitiveness of the skin may be graphically represented in the annexed figure.



Here, the measurements taken at 7 o'clock in the morning, *i.e.*, at the commencement of school-work, coincide fairly closely with those taken on Sunday, and we may assume that the burden of school-work was not so heavy as to prevent the mental fatigue of the day from being dissipated by the rest of the succeeding night.

On the other hand, the afternoon work evidently makes great demands on the boy's energy, for the measurements after one hour's arithmetic from 2 to 3 o'clock are on the whole as high as after 3 hours' morning work. Nor is the boy at 2 o'clock free from traces of fatigue.

It is interesting to note that the gymnastics, to which the boy evidently devoted himself with no lack of energy, as the note "considerably heated" is appended, has but little restorative influence, the measurements after this hour being but slightly less than the previous ones.

Throughout the whole of Class V., which included boys of thirteen to fourteen years of age, the afternoon work produced great reduction in the sensitiveness of the skin.

In Class IV., with boys a year older, the afternoon work yielded measurements of a much more satisfactory character; but the work consisted of history and gymnastics, the former of which has been found to make very slight call on the mental powers, while the latter does not as a rule tend to minimise the sensitiveness of the skin if not indulged in too vigorously.

The following table gives the measurements of a boy of 15, of

development somewhat below the average for his age, and ordinary ability:—

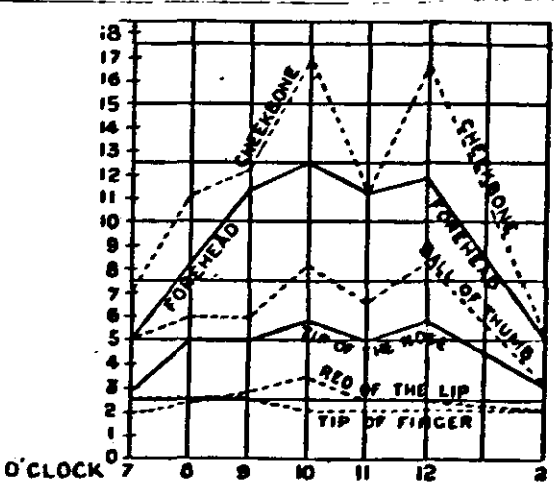
Table of Work	7—8. German.		8—9. Drawing.	9—10. Drawing.	10—11 Writing.	11—12. French.	2—3. History.		3—4 Gymnastics.	Sundays.
Time of Measurement	7.	8.	9.	10.	11.	12.	2.	3.	4.	
1	4	8	7	6	6	8	4·5	6	6	4·5
2	1·5	2·2	2·5	2	2	4	1·5	1·8	2·5	1·8
3	1	2·5	2	2·5	1·5	2·5	1·2	1·5	2	1
4	4	7·5	13	11·5	11·5	14·5	5·5	9	8·5	4
5	3	4·5	6	5	5	5·5	2·5	6	5	3
6	1	2	2	2	2	2·5	1·2	1·5	1·8	1

Now let us compare with this the record of a boy in the fourth class of the Gymnasium.

Here the school-work only extends over the morning hours, there is no afternoon instruction.

The accompanying table and diagram refer to a boy of thirteen of not particularly healthy appearance, but of good ability and industrious:—

Table of Work	7—8. Natural Science.		8—9. Latin.	9—10. Geometry.	10—11. Geography.	11—12. Latin.	—
Time of Measurement	7.	8.	9.	10.	11.	12.	2.
1	5	8	11·5	12·5	11	12	5
2	3	5	5	6	5	6	3
3	2	2·2	3	3·5	2·5	2·5	2
4	7	11	12	17	11	17	5
5	5	6	6	8	6·5	8	3·5
6	2·5	2·5	2·5	3	2	2	2



The measurements taken from other boys in the same class agree with this one in the main.

An interesting feature is the evidently exhausting nature of the hours at Geometry and Latin and the recuperation which takes place during the geography hour.

The figures recorded at 2 o'clock agree very much with those at 7 o'clock in the morning.

On the whole the evidence of these figures goes to show that the actual school work of the Gymnasium makes a greater tax on the mental powers than that of the Oberrealschule.

In all these measurements, however, the manner in which the class was conducted, and the energy infused into the lesson by the teacher, proved of more importance in influencing the sensitiveness of the skin than the kind of work in question.

Thus, in the case of the Lower First of the Gymnasium, the figures taken from the cheekbone rose from 15 to 20 at a history lesson from 10 to 11 o'clock, but fell from 20 to 14 during a Latin lesson in the succeeding hour, and measurements on other pupils of the same class gave similar results in every case. The recovery of sensitiveness during the Latin hour was attributed to the fact that the teacher was accustomed to deliver a lecture in this hour which made but slight call on the mental powers of his hearers.

Griesbach next extended his experiments to pupils of an industrial school.

Here the additional hours of practical work over and above a fair complement of school instruction produced a very marked lowering of the sensitiveness in the course of the day.

The daily work of the pupils averaged nine to ten hours a day, including home-work.

The figures given may be taken as an average case.

Table of Work	7—8. Mechanics.		8—9. Mechanics.	9—10. French.	10—11. Algebra.	11—12. Anal. Geom.	—	Sunday.
Time of Measurement	7.	8.	9.	10.	11.	12.	3.	4.
1	4·5	5·5	11·2	9	10·5	12·5	5	4
2	2·5	3	3·2	3	4	6·5	2	2
3	3	3	4	3	3·5	4	2	1·5
4	7·5	11	17·2	12·5	18	20	5·5	4·5
5	4	6·5	6·5	7	8	9	5·5	3
6	2	2·2	2·2	2·5	2·5	3	1·5	1·5

We may notice here that French affords opportunity for recovery of sensitiveness and makes less demand on the brain than the mathematical hours between which it is interposed.

If we now compare these results with measurements taken from young clerks in business houses, we find abundant evidence of the fact that the work of the latter, although involving longer hours, makes no such demand on the brain as school-work. The next table refers to a youth of 19, of regular habits and average

physique, employed at mercantile correspondence and translating letters from one language to another, and keeping accounts.

Times of Measurement	7 a.m. (Before work.)	12.	— 2 hours' rest.	2 p.m.	7 p.m. (Work over.)	Sunday.
1	6	7·5	—	5·5	10	5·5
2	2	3	—	2	3	2
3	1·5	1·5	—	1·5	2	1·5
4	6	7·5	—	5·5	8·5	5
5	4	5·5	—	5·5	6·5	4
6	1·5	3	—	1·5	2·5	1·5

The slight decrease of sensitiveness in the course of the day compares favourably with the strikingly greater variations in that of most of the schoolboys who came under Griesbach's notice.

Similar results were obtained from pupils of the spinning and weaving school of the town, and from others employed as apprentices in engineering works.

In general, mechanical work such as engineering appeared to produce a very slight lowering of sensitiveness and, we may conclude, has as a rule but little fatiguing influence on the brain.

Finally Griesbach was able to undertake experiments on pupils of the Oberrealschule, mostly of the age of sixteen to seventeen, who were engaged in the State examination to qualify for one year's military service.

Owing to the early hour fixed for the commencement of the written examination, seven o'clock, it was impracticable to subject the youths to experiment before that hour, but measurements were taken (1) during or at the close of the examination of five hours length, (2) some hours afterwards, and (3) on a free day, in order to obtain the normal value.

Two tables are appended; the first referring to a youth of healthy appearance, good physique, and fair ability; the second, to one of poor physique, unhealthy appearance and moderate ability.

—	1st Day. German Essay.		2nd Day. French.		3rd Day. Mathematics.		4th Day. English.		Free Day.
	Hours of work 7–12.								
Time of Measurement	11.30.	4.30.	10.	1.	12.	5.	10.30.	1.30	
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
1	12	5	12	7	14	7·5	14	9	4
2	5	2	5	3	6	3·5	7	5	1·5
3	3	1	3	2	3·5	2	3·5	2	1
4	14	6	18·5	26	17	9	18·5	9	4·5
5	8	5	9·5	5	10·5	5	10·5	6	4
6		15	2·5	1.5	2·5	2	3	2·5	1

—	1st Day. German Essay.	2nd Day. French Work.		3rd Day. Mathematics.		Free Day
Time of Measurement -	11.30 a.m.	11 a.m.	3 p.m.	12.	5 p.m.	
1 - - - - - -	12	11	5·5	16	8	4
2 - - - - - -	5	5	3·5	6	3·5	2
3 - - - -	4	2·5	2	2·5	1·5	1
4 - - - - - -	15·5	16·5	9	15	9	5
5 - - - - - -	12	8·5	5·5	9	4·5	4·5
6 - - - - - -	2·5	2·5	2	3	2	1

Oral examination of same pupil. In this part of the examination four or five pupils were examined together, and in such a way that each pupil was obliged to give all his attention to the examiner during the whole of the time. The examination lasted two hours, with a break of ten minutes after the first hour. The measurements were taken immediately before and after the examination, and again on a day free from work.

—	Before Examination.	After Examination.	On a Free Day.
1 - - -	6	17	4
2 - - -	4	5	2
3 - - -	2	3·5	1
4 - - -	15	27	7
5 - - -	6	10	4·5
6 - -	2	3·5	1

Griesbach complains that the examinations of the present day make demands on the memory scarcely to be credited; the results of his experiments, at all events with boys in the above-mentioned examination were certainly lamentable. It carries with it such an important privilege that the exertions made by those entering for it, especially in the case of boys of less than average mental powers, are often dangerous to health, and the oral examination appeared to entail more mental strain than the written one. He gives it as his opinion that "Die Einführung der schriftlichen und mündlichen Abschlussprüfung für Untersekunda in einer Zeit, in welcher auf dem Gebiete des Schulwesens das Streben nach Entlastung sich immer dringender gestaltet, ist vom hygienischen Standpunkt aus zu verdammen und pädagogisch nicht zu rechfertigen."

Strong terms—but none too strong in view of the state of things brought to light by his investigations. It is against this abuse of the power of memory, too, that Griesbach most strongly inveighs, characterising it as an enormous waste of energy.

Nothing, he maintains, is a greater obstruction to the healthy activity of the brain than cramming the memory with dry facts, the learning by heart of masses of prose and poetry, dates and names, all of which serves only to cloud the reasoning powers and deaden rather than develop the mental faculties.

Out of 42 pupils who entered for the oral part of this examination, an examination which represents the highest aim and culminating point of the school life of the great majority of German boys in secondary schools, Griesbach experimented in the above manner on 35; and *according to his reports as a medical man* on the state of health of each pupil *scarcely one of these 35 was in a sound and healthy state.* Many were anæmic; others in an irritable nervous condition, which manifested itself in twitchings of the skin, palpitation of the heart, trembling hands, etc.; others slept badly, suffered from bad dreams and nightmares, or dreamt constantly of their studies, others suffered from bleeding at the nose.

It appears that the majority had been accustomed to work very late in the evenings after school, even up to twelve o'clock and later, for some weeks previous to the examination, and the results of the experiments showed that most of the pupils entered the examination with a sensitiveness of the skin already considerably lowered. Griesbach attributes this partly to the mental excitement consequent on the impending examination and partly to loss of nervous force induced by overwork.

The next table is interesting as showing the apparently fatiguing effect of private study where the pupil's attention is incessantly directed to the work in hand.

The hour's private study was devoted to solving geometrical problems which necessitated considerable calculations. The fatigue induced appears to be but slightly less than that resulting from the five hours' school-work quoted in column three.

—	Normal.	After One Hour of Private Study.	Mid-day after Five Hours' School-work.
1 - -	13·7	10·5	11·7
2 - -	2·0	4·0	4·5
3 - -	1·5	2·5	2·7
4 - -	4·5	13·5	14·7
5 - -	3·7	8·0	9·3
6 - -	1·2	2·5	2·9

Out of the 89 experiments which Griesbach carried out and reported, the following is appended as an interesting example.

The subject was a pupil of the Obertertia class of 32 boys, in the Oberrealschule. The weekly quantum of work for the class was 32 hours in school, 4 hours in workshops, and 2 hours definite home work every day—which implies an average of 7½ o 8 hours' daily mental work. The pupil's age was 14½; height 5 ft. 3 in.; weight 5 st. 9 lbs. He was reported as industrious and

attentive in class, and was accustomed to go to bed at 11 o'clock and rise at 5·30 o'clock.

Subjects	7—8. Geometry.		8—9. Natural History.	9—10. Religion.	10—11. English.	Break.	2—3. Natural History.		3—4. Drill.	4—5. Geography.	Saturday Afternoon
Time of Measurement	7.	8.	9.	10.	11.		2.	3.	4.	5.	5.
Forehead	6	9	7	6	10	–	7·5	8	5	6	3·2
Tip of the nose	3	4·5	4·5	3	4	–	3·5	4·5	3	3·5	2
Red underlip	1·5	1·8	2	2	3	–	2	2	1·2	2·5	1·5
Cheekbone	7·5	8	8	5	12	–	12	12	6	11	5
Ball of the thumb	4·5	6·5	4	3	7	–	7	6	6	6	3
Tip of the first finger	1·5	2	2	1·5	2·5	–	2·5	2	2	2	1

The Saturday afternoon measurements may be taken as representing the boy's normal sensitiveness. The measurements at 7 o'clock in the morning show a lowering of sensitiveness even before the commencement of work, which might well be attributed to lack of sufficient sleep—only 6½ hours!

We see, too, that the diminution of sensitiveness is greater at 2 o'clock in the afternoon than at 7 o'clock in the morning, despite the three hours' break at mid-day, implying that this interval was not sufficient to dissipate the fatigue produced by the morning's work. Thus, beginning the afternoon work with lessened power of resistance to fatigue, he must either accomplish less or exert his nervous forces to an injurious extent. It is questionable, however, whether at this period of the day, shortly after the mid-day meal, a depression of sensitiveness ought to be regarded as a sign of insufficient rest, and whether it is not a natural concomitant of the time of day and the condition of the body after the chief meal of the day.

The evidence of fatigue as exhibited by the loss of sensitiveness produced by the various subjects, is in distinct agreement with the results of Kemsies and other investigators and with the general experience of teachers,—Mathematics and Languages here represented by Geometry and English, producing the greatest fatigue; Religion and Natural History making little demand on the mental powers and thus admitting a recovery of sensitiveness.

The afternoon work in this case makes apparently little demand on the mental powers, for the sensitiveness at 5 o'clock is but little less than at the commencement of morning school. We may thus assume that the day's work has not unduly fatigued the boy, and that the night's rest would suffice to remove the traces of the day's fatigue. The subjects demanding greater mental exertion are suitably alternated in the scheme of work with those of a lighter character, and to this the comparatively slight loss of sensitiveness at the close of the school day may be largely attributed.

It is to be noted, however, that the lowest figures recorded during the day were considerably higher than those taken on Saturday afternoon, this being a free day. There was in fact probably a permanent loss of sensitiveness throughout the week which only the rest on Saturday sufficed to dissipate. This, however, was not so marked as to indicate any injurious strain in the system.

It may be taken for granted that in the case of a healthy subject the sensitiveness in the early morning before commencing the day's work should agree with the normal sensitiveness as measured on days free from work.

But Griesbach's measurements showed many cases in which the sensitiveness was at a comparatively low ebb in the early morning, and some even, in which the degree of fatigue evidenced at this hour must have made it impossible for the brain to meet the demand made on it in the course of the day.

In such cases no doubt the pupil would be inclined to dream away his time in school, instead of giving his attention to the work in hand and thereby allow his nervous powers to gain strength. Inattention may in such cases be regarded as nature's safeguard against over-fatigue.

Such cases of depression of sensitiveness may often, too, be referred to causes outside the influence of school work, such as general bodily weakness, nervous state of the system, too early rising, or other unhealthy conditions.

The early commencement of schools, in some places seven o'clock in summer and eight o'clock in winter, Griesbach particularly deprecates, especially for younger children.

School at seven o'clock often implies getting up at half-past five, consequently the night's sleep is cut short, a great mistake in the case of growing children. The fact is hardly to be credited that some of the younger boys whom Griesbach examined admitted that during six days a week they seldom spent more than six and a half to seven hours in bed. He points out that for younger children ten to eleven hours in bed is none too much, while for elder youths eight to nine hours is absolutely requisite.

The postponement of the hour of commencing school to eight o'clock at the earliest would go far to remedy this state of things.

The four or five hours' morning work generally produces on a child of normal health and capacity for work a reduction of one-half to one-third in the sensitiveness of the skin, which we may assume implies a considerable but not excessive degree of mental fatigue. The great mass of Griesbach's experiments, however, showed that the mid-day break of two to three hours was insufficient to obliterate the traces of fatigue thus induced. Hence afternoon work was, as a rule, begun under unfavourable conditions, and the sensitiveness of the skin generally decreased much more rapidly and to a lower ebb during afternoon than during

morning work, thus leading us to infer that the power of resistance to fatigue is much slighter in the afternoon.

Richter's conclusions are here fully corroborated, and Griesbach agrees with him in advising great care and circumspection in the arrangement of afternoon work. He points out that *two o'clock is too soon to begin,* that the digestion of the mid-day meal is thereby retarded and the brain is kept actively employed all day long, for soon after the end of afternoon school, home work must be commenced, and thus from early morning till late at night there is practically no cessation of work except for meal times, a state of things which must, in the long run, exercise a prejudicial effect on the constitution. So Griesbach advocates either a longer mid-day break or the total abolition of all afternoon work and the devotion of the time thus gained to bodily exercise in the open air in summer and gymnastics and games in closed but roomy courts in the winter.

The plan which now obtains in many Prussian schools is to devote the morning to so-called "Wissenschaftliche Arbeit," while relegating such subjects as drill and singing to the afternoon. Under this arrangement the recovery of sensitiveness after the morning's work is found to be steadier and more permanent. The question of drill, however, calls for particular attention. The general opinion that this exercise is an excellent means for dissipating mental fatigue, is not confirmed by Griesbach's enquiries. We have seen that Kemsies classed it along with mathematics as one of the most fatiguing subjects of instruction and throws considerable doubt on the value of it as a means for dissipating mental fatigue.

In cases where the exercises necessitated considerable exertion, and thus produced a heated state of the body, no recovery of sensitiveness was noted with the Aesthesiometer, often indeed further diminution. At all events the general evidence of experiments on various lines seems to point to the fact that to insert an hour's gymnastics in the course of the morning's work on the principle that it affords an opportunity for recuperation of nervous energy and consequent dissipation of mental fatigue is a fallacy. Physical exertion under strict discipline appears to produce loss, rather than gain, of nervous energy. This argument, however, does not seem to apply so generally to singing. In most cases a recovery of nervous energy was noted after this hour, though in some cases where children were known to exert themselves strongly, a loss of sensitiveness was remarked.

That the instruction in the higher public schools of Germany does make a severe demand on the energy and mental powers of boys is no doubt true; Griesbach himself comes to the conclusion which he italicises in the original:

"*Dass kein Schulknabe und selbst kein Erwachsener, ohne Gefahr für seine Gesundheit, Tag ein, Tag aus geistig so lange zu arbeiten im Stande ist, wie es der heutige höhere Unterricht bei strenger Durchführung erheischt.*"

It is probable, however, that many cases of excessive mental

fatigue developed in the course of the day and of permanent exhaustion marked by constant reduced sensitiveness of the skin at the beginning of each day's work can be traced to outside causes for which the school can hardly be held responsible.

A common cause of breakdown is to be found in the tendency to push children through a school education for which they are by nature and early training mentally unfitted.* Unhealthy hours and habits may account for others; but probably the most fruitful source of all lies in the lack of healthy and free open-air exercise, the place of which is usually taken by gymnastics.

The much greater attention paid latterly in secondary schools to modern languages and science is no doubt in a great measure accountable for the severe pressure now prevalent in these institutions.

While devoting more time to these subjects, little has been done towards relieving the pupils of the burden imposed on them by the study of the dead languages.

The method now introduced by the small but rapidly increasing number of Reform Schools† is no doubt a step in the right direction and will go far to relieve the schools of the charge of overworking their pupils.

The main features which distinguish the schools of the Reform type from other secondary schools are firmly advocated by Griesbach as the right means of relief from over-pressure. The greater freedom afforded in the choice of that line of education most suited to a boy's taste and inclination, the commencement of different languages in orderly succession and the more rational arrangement of the curriculum resulting from it, are all points the adoption of which would help to relieve the strain at present imposed in most secondary schools.

As regards the measurements which Griesbach made on teachers, the results showed that classwork imposed a greater strain on them than private tuition, while examination work proved the most exhausting.

The question of over-pressure among teachers is not one on which a definite opinion can be formed owing to lack of data, but Griesbach considers that the amount of work apportioned to each teacher should be carefully weighed, for a "mentally fatigued and consequently irritable and nervous teacher cannot be any great gain for purposes of instruction."

The Berlin Conference considered 22 weekly hours sufficient for a teacher; it often, however, amounts to 24, which is in Griesbach's opinion too much. The few measurements that have been made on teachers by Mosso and Griesbach afford strong evidence of the great mental fatigue and loss of nervous

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* *cf. Marie Landmann*, Die Ueberbürdungsfrage und die Gesundheit unserer Schuljugend. Hygiena. May 1897, p. 235.

† *cf. Parez*, Reform Schools in Germany. Parents' Review, Dec. 1898, and Jan. 1899.

energy produced by the work of teaching. Finally the Berlin Conference passed a resolution to the effect that every pupil should receive elementary instruction in the fundamental principles of hygiene. This, Griesbach thinks, would be a blessing both for school and home. Instruction ought to be given by a properly-qualified person who has studied in a hygienic laboratory, if possible by a practical school-teacher. The resolution of the Conference has not so far been acted on.

Such an institution already exists in Hungary and the reports which have appeared about it have been most favourable.

Wagner's Experiments.

The method of ascertaining the degree of mental fatigue by noting the reduced sensitiveness of the skin seemed to offer so many advantages over previously-devised methods that it gained instant favour among thoughtful enquirers into this subject.

Further ample experiments were carried out on the same principle by Dr. Ludwig Wagner in the summer of 1896, the results of which were published in pamphlet form last year.* They were undertaken in several classes of the New Gymnasium in Darmstadt, to the Teachers' Training College in connection with which Wagner was attached.

He introduced some slight modifications into the manner in which the experiments were previously carried out, amongst others adopting the plan of determining the critical distance at which the contact of the two compass points is only recognised as one, by making trial contacts at alternately greater and smaller distances, which distances are gradually reduced or increased respectively until the critical mean is struck. This mode of procedure appeared to give more reliable results than that of starting from smaller or greater distances and gradually increasing or decreasing them.

In his extremely interesting pamphlet giving the results of the measurements Dr. Wagner points out in support of the theory that a close connection exists between mental fatigue and reduced sensitiveness of the skin, that from the results of investigations made on these lines a direct connection can be traced—

1. Between the amount of change in the sensitiveness of the skin and the character of the preceding work.

2. Between the number of pupils who show reduced sensitiveness and the character of the work.

3. Between high figures, *i.e.*, reduced sensitiveness, and the character of the work; very attentive pupils, for example, showing

* Unterricht und Ermüdung. Dr. Ludwig Wagner. Berlin: Reuther und Richard, 1898.

high figures, while idlers seldom showed any great reduction of sensitiveness.

4. Between high figures and the personality of the teacher.

5. Between the sensitiveness of the skin and the relative freshness of the pupil at the commencement of school-work.

6. Between the general state of health and the curve of fatigue, *i.e.*, the nature of the increase of sensitiveness in the course of the day's work.

Of course, no direct proportion between mental fatigue and reduced sensibility can be established, one can only infer that the connection between the two phenomena is close enough to warrant our considering the results of the one as tolerably conclusive evidence of the presence in a greater or lesser degree of the other.

Wagner made his measurements usually on the back part of the checkbone near the ear, in which region the normal critical distance is about 10 mm. It will be seen from Griesbach's figures that this part of the face is more susceptible to variation in sensitiveness than any other, with perhaps the exception of the forehead, which appears to be almost equally subject to variation.

The Aesthesiometer used was furnished with blunt points and the measurements were always made on a line in the direction from ear to eye.

As Wagner's measurements were carried out on the same lines as those of Griesbach, a detailed description of his work may be dispensed with; it may not, however, be out of place to notice some of the points to which he gives prominence in discussing the results he obtained.

Amongst the three classes in which he experimented a very large proportion appeared to be in a depressed or low state of health.

In "quarta," for example, out of 18 pupils examined eight were in an unsatisfactory state.

Some gave evidence of chronic depression brought to light by the high figures recorded at the beginning of school-work, a state probably to be ascribed to the constant habit of spending too few hours in bed.

Others showed, by the enormous increase in the figures recorded during the morning, inability to cope with the ordinary school-work without the development of exceptional fatigue.

Many cases of nervous pupils are characterised by high figures at the beginning of the morning, which show, however, a slight but fairly constant reduction in the course of the work: this may in many cases be explained by the fact that such pupils are physically incapable of applying themselves to the work in hand with the energy and steadiness of a boy in a normal

state of health, and that the morning is therefore rather an opportunity to them for recuperation than for dissipation of energy.

It must, in fairness, be noted that these measurements were made towards the end of the school-year, at the busiest working time, when higher figures might naturally be expected than at other times.

In general, Wagner found that, *ceteris paribus*, the fatigue increased in proportion to the degree of attention given, but decreased in proportion to the ability of the individual.

Wagner lays great weight on the importance of recognising that it is *not so much the instruction as the instructor who should be held responsible for the amount of fatigue produced in the course of a school-hour*, and that the most carefully devised curriculum would fail to prevent the production of severe mental fatigue if the last pound of flesh were remorselessly exacted in every subject, or too little attention paid to variety, change of posture, and other aids towards the avoidance of monotony and the promotion of interest.

There are some pupils who by reason of inferior mental powers are bound to become mentally overtaxed if they make a conscientious effort to do all that is required of them in school.

Wagner strongly advocates therefore *the expediency of requiring a knowledge of school hygiene from all qualified teachers.* It should not, he thinks, be left to the chance notice of the medical faculty to determine whether a child is equal or not to the daily round of work. The teacher should be acquainted with the simpler principles of hygiene and their application to the class-room and should be able to detect from outward signs the presence of chronic mental fatigue or over-pressure in any of his pupils.

It often occurs that a pupil, in consequence of rapid growth, constitutional weakness, or other cause, is unable to cope with the work of his class, and evinces a strong disposition to idle and shirk as much work as possible. The teacher should be able in such cases to diagnose the true cause of the symptoms and treat the case in accordance with hygienic principles, sparing instead of punishing or worrying the pupil with extra lessons or detention.

Many cases of chronic inattention in children, Wagner was able to attribute with tolerable certainty to physiological causes, while in others, lack of interest and mental lethargy were often the first sign of impending sickness.

To several points in particular in the domain of school hygiene, Wagner makes special allusion. He strongly deprecates any child of nervous disposition being burdened with instruction in music in addition to the ordinary school-work. In the course of his investigations, the pertinent fact revealed itself, that of the children who studied music, two-thirds were of weak or nervous constitution, and it is probable that the study of music is in

itself strongly favourable to the production of nervous symptoms. On the other hand, however, it is possible that children of a nervous and emotional character often display a predilection for a subject such as music, which appeals to the emotional side of their character. This may perhaps account in some measure for the above fact.

As to sleeping hours, Wagner reiterates the opinions expressed by Griesbach in reference to the amount of sleep necessary for children, and the doubtful advantage of commencing morning work before 8 o'clock. The results of the measurements, taken as a whole, seem to justify the length of the intervals between the hours at present in vogue in this and many other schools in Germany, which vary from five to fifteen minutes.

The abnormally high figures, however, obtained from some children would seem to point to the advisability of making all intervals of fifteen minutes' duration; but whether such a change should be made in the interest of a relatively small proportion of children is open to question.

Although Wagner's inquiries were not directed specially to ascertaining the effect of gymnastics, yet his figures throw considerable light on the disputed question of the expediency of introducing gymnastic exercises into the ordinary course of school work, and their value as a recuperative agent.

Ninety observations were made on pupils immediately after the gymnastic hour. In the majority of these it may be taken for granted that the children were previously in a normal state of freshness after the preceding interval.

Of these 90 only 21 could be regarded as not having incurred more or less nervous strain in the course of the hour, although an increase of 1 millimetre in the measurements taken was reckoned as indicating recuperation rather than fatigue, while if an increase of 3 millimetres be regarded still as comparative recuperation, the number who exceeded this was 59 per cent. of the whole. Complete recuperation, as indicated by no apparent loss of sensitiveness of the skin, was only recorded in 9 per cent. of the measurements.

One conclusion from these figures is clear, namely, that to ascribe a mentally-restorative influence to gymnastic hours is, as a rule, misleading, and Wagner adds that, were it not that the latter half of the hour was in many cases spent in playing games, the influence of the gymnastic hour would probably appear in a still more unfavourable light.

On the whole it would probably be correct to regard gymnastic hours as on a par with the other hours of instruction in their effect as regards fatigue, and this view is only in accordance with the conclusions arrived at by Mosso as to the close action and reaction between mind and body; "Ermüdung ist ein allgemeiner Zustand des Körpers, der Nerven und Muskeln gleichmässig betrifft."

Afternoon work is strongly condemned by Wagner as worthless from a pedagogic and mischievous from a hygienic standpoint.

Of thirty-one pupils examined by him before and after two hours' "wissenschaftlich" afternoon work, only two gave indications of recuperation, a result which confirms Griesbach's conclusions on this point: there seems to be little doubt that the addition of an extra hour to the morning's work, thus making five hours in all, and leaving the afternoon free from all work of a "wissenschaftlich" character is distinctly preferable on hygienic grounds to the old and still common plan of having afternoon school for a couple of hours, by which arrangement the children are engaged in mental work practically the whole day. And every teacher can testify to the lethargy, inattention, and lack of interest which pervades afternoon classes, and which are in themselves the best testimony to the unhygienic principles involved in them.

These views are corroborated by every person who has given his attention to school hygiene. Théodore Vannod, surgeon at one of the Berne hospitals, who carried out similar experiments to those of Griesbach and Wagner in the schools of Berne, writes:*

"L'élève n'a pas le temps de trouver la compensation nécessaire pour faire disparaître la fatigue occasionée par les travaux du matin. Nous partageons entièrement le point de vue de Prof. Griesbach, qui demande, sinon l'abolition complète des classes de l'après-midi, tout au moins un plan d'études qui n'autorise pour les heures de l'après-midi que des leçons n'occasionnant pas de fatigue intellectuelle, par exemple le dessin, le chant et la gymnastique. L'enseignement des langues anciennes et des mathématiques doit être absolûment réservé aux classes du matin; sans cela nous arrivons à un véritable épuisement intellectuel de l'élève, absolûment nuisible à sa santé. On pourrait même prolonger les heures d'école de la matinée jusqu'à une heure pour procurer ainsi à l'écolier autant de liberté que possible l'après-midi."

Concluding Remarks.

Passing in review the investigations here described, one is struck as much by the methodical and unsparing labour which has been devoted to the subject of mental fatigue both by educationists and physicians in Germany, as by the close agreement in the results of these investigations, although conducted independently, in various schools and on three entirely different systems.

This agreement affords a strong presumption of the general correctness of the means employed to detect mental fatigue, and of the intimate connection between that phenomenon and the variations in the mental or physical state, on the observation of which the investigations in question were based.

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* La Fatigue Intellectuelle et son Influence sur la Sensibilitée Cutanée. Par Th. Vannod. Génève: Imprimerie Rey et Malavallon. 1896.

In many cases these were of a more or less tentative character, and the conclusions drawn from them could scarcely have been accepted as in any way authoritative had they not often been corroborated by the results drawn from other independent sources. The connection between work and fatigue, with its concomitant mental and physical symptoms, is of course purely relative and varies *for* each individual as well as *in* each individual under varying circumstances.

But if absolute data are out of the question, the efforts of investigators have been so far successful that they have awakened public interest in this department of school hygiene, and gained a recognition of the fact that the organisation of school-work ought to be drawn up with due regard to the health and strength of the scholar, and that no scheme of school-work should be allowed to exist in which the day's work would appear to involve greater fatigue than could be dissipated by the night's rest.

The most serious and most frequent cases of mental exhaustion from overwork seem to have been noticed amongst pupils under twelve years of age, a serious indictment considering that the years from nine to twelve are generally looked upon as those of feeblest development, particularly in the case of boys. There seems to be a general consensus of opinion amongst investigators that the hours in vogue at most schools are too long for children of this age. Thirty minutes is regarded as the limit of time during which the serious attention of children to one subject can reasonably be demanded; though with skilful introduction of variety into the lesson, forty to forty-five minutes might be devoted to it without entailing too severe a strain on the mental powers. One fact at any rate stands out clear, viz.:—*That nothing exhausts children so much as prolonged mental exertion combined with strict attention.*

The important question of intervals of suitable length between the hours of work has been ably investigated by Friedrich and Griesbach, and their experiments led them to the conclusion that continuous work should never exceed one school-hour. The most favourable results were obtained when intervals of five to fifteen minutes occurred between each lesson.

Friedrich's experiments, however, seem to point to the advantage of making the intervals rather longer than is usually the case, especially when all the school-work is done in the morning.

The time lost in the intervals is, Friedrich maintains, amply compensated for by greater freshness and capacity for work.

Richter proposes the following as a suitable time-table for such schools:—

1st hour - - 8 to 8.50.
10 minutes interval.
2nd hour - - 9 to 9.50.
15 minutes interval.
3rd hour - - 10.5 to 10.55.
20 minutes interval.
4th hour - - 11.15 to 12.
30 minutes interval.
5th hour - - 12.30 to 1.15.

Such a programme would, he maintains, if the intervals were made use of in a legitimate way, afford the pupils ample time to recoup their mental energy during the intervals and come fresh and unfatigued to work each hour.

The question as to how the intervals between the hours of work should be filled up is one on which very different opinions are held. Mosso, who lays stress on the intimate connection between mental and corporal work, strongly disapproves of devoting them to gymnastics, and considers that such a course only tends to further wear and tear of the nervous system.

Dornblüth, on the other hand, in his interesting article, "Sollen die Schulen ihre Turnstunden zwischen den andern Unterrichtsstunden aufgeben?" (*see* Bibliography) strongly upholds the prevalent system in Germany of interpolating gymnastic exercises between the hours of school work on the principle that after severe mental labour any other form of activity, for preference moderate corporal exercise, has more effect in dissipating mental fatigue than complete rest; and maintains that the interpolation of such well-regulated moderate exercise has proved itself by experience to be in no wise prejudicial but rather beneficial to the work done in the ensuing hours.

Much no doubt depends on the way in which the gymnastics are carried out.

If allowed to exercise themselves at their own free will, it is doubtless quite possible for boys to overheat and tire themselves, and thus render themselves temporarily unfit for quiet mental work; but a gymnastic class conducted in an orderly manner, where one pupil takes his turn after another, makes but a slight demand on the attention or the muscular powers, and doubtless offers favourable conditions for recovery from mental fatigue.

This question, however, has still to be thrashed out, and more experiments on the effect of gymnastics between school hours would form a welcome addition to the present scanty knowledge of the matter.

The results of enquiries into the effect of afternoon work were in general of an unfavourable character. The reasons for this have been already discussed. On the whole, however, the evidence collected seemed to favour a morning's work of five hours as hygienically more suitable than a division of work between the morning and afternoon; in any case, all work involving severe mental exertion should be done in the morning, and the afternoon, if utilised at all, devoted to technical subjects, such as gymnastics, needlework, writing, drawing, singing, etc., which make but slight demand on the mental powers.

The limit of healthy mental fatigue should never be exceeded and it stands to reason that children whose mental powers are exhausted by morning and afternoon school are not in a position to commence serious brain work again in the evening without risk of injury to health.

One very significant fact alluded to by Mosso, and constantly

noted by Griesbach and Wagner, was the tired state of many of the children at the commencement of the day's work. This might be the natural result of some specially severe mental or physical exertion on the preceding day, the traces of which the night's rest had not sufficed to obliterate: taken in conjunction with other symptoms, however, and with the behaviour of the children under the tests put to them in the course of the day, it appeared to indicate, in many cases, a state of chronic depression or nervous exhaustion.

That this is often due to other causes than the fatigue induced by school-work, may, however, be gathered from the fact that many of these children admitted having spent only six or seven hours in bed at an age when ten would not be too many.

The early hour at which many of the day schools in Germany commence is, perhaps, partly responsible for this, but the habit of allowing children to sit up far beyond a reasonable hour for retiring was in many cases the cause of it.

The influence of holidays in affording opportunity for rest and recuperation of mental vigour has received as yet but slight consideration. The importance of the Sunday's rest and its influence on the work of the week was noted by Kemsies, but the questions of the length and frequency of holidays, and their relative importance for children of various ages, might with advantage form the subject of future investigations.

Dr. Max Brahn* says:—"Holidays are necessary as often as, in the ordinary course of school-work, a time occurs when the nervous and mental exhaustion can only be checked by a longer cessation from work." It can, however, scarcely be questioned that they are expedient if not necessary, at regular times and seasons, and that the ordinary course of school-work ought never to tax the energies of scholars so far as to make holidays an absolute and immediate necessity.

I wish in conclusion to express my sincere acknowledgments to Herr Professor Hornemann, of the Real-Gymnasium I. in Hanover, for his very kind assistance and advice on various points in connection with the subject of this paper; also to Herr Oberlehrer Köcher, of the Kaiser Wilhelm Gymnasium, by whose permission I was able to make use of the valuable library attached to the school; and to Mr. H. W. Atkinson, of Rossall School for his very able and careful revision of this paper.

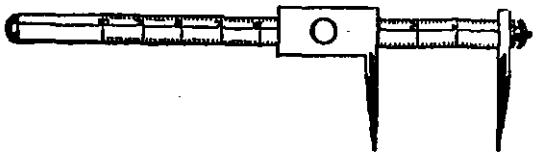
C. C. Th. Parez.

* *Brahn*, Die Geisteshygiene in der Schule. Deutsche medicinische Wochenschrift. 24th June, 1897.

APPENDICES.

A.

By the kindness of Dr. Bruns, Specialist for Nervous Diseases in Hanover, I have been enabled to make the accompanying sketch of an *Aesthesiometer*, the instrument employed by Professor Griesbach, Dr. Wagner, and others in their investigations.



THE AESTHESIOMETER.
(Half actual size).

The bar is of polished steel and graduated in centimetres and millimetres. The two points are of vulcanite, the one at the end being fixed, while the other slides along the bar and is adjusted to any position by a small screw. The tips of the vulcanite points are blunted, as it is important when applying them to the surface of the skin to avoid the irritation produced by sharp points. The instrument was made by Katsch, Philosophical Instrument Maker in Munich. It costs about 15m.

B.

An interesting apparatus is now being perfected by Dr. Schrader, Professor at the Kaiser Wilhelm Gymnasium in Hanover. It promises to offer a simpler and more direct means of measuring mental fatigue than any of the methods hitherto devised. The principle involved is the same as that on which the experiments with the Aesthesiometer are based, namely, that mental exertion produces a deadening or fatigue of the nerve centres, thus rendering them less sensitive to external impressions. Schrader's apparatus, however, is designed to determine directly the actual retardation in the time of reaction of the sensorium itself after mental exertion. The apparatus is so constructed that the time which elapses between the act of seeing an electric spark and that of pressing a knob in electrical connection is registered by means of a photographic appliance. With this apparatus it will be possible to measure the influence of mental exertion on a number of persons at the same time—possibly on whole classes; and in this respect it should prove a distinct improvement on previous methods.

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REPORT OF THE CONGRESS ON THE EDUCATION OF FEEBLE-MINDED CHILDREN, HELD AT AUGSBURG, APRIL 10–12, 1901.

The Congress on the Education of Feeble-minded Children, held at Augsburg April 10–12, 1901, was convened at the instance of the Special Schools Union of Germany under the presidency of Inspector Dr. Wehrhahn of Hanover and met primarily to discuss and make recommendations for future legislation with regard to feeble-minded children in the German Empire.

There were 362 members of the conference consisting mainly of inspectors, teachers and medical men, including representatives from the Prussian, Bavarian and Saxon Government Education Offices, and foreign delegates from the Board of Education, Whitehall, from Austria, Switzerland and Sweden.

The account of the proceedings may be most advantageously grouped under the following headings :—

(1.) The Selection of Feeble-minded children.
(2.) School Provision.
(3.) The Teacher and the Curriculum.
(4.) After-Care.
(5.) Appendices.

The Selection of Feeble-minded Children.

The special school, or school for feeble-minded children, is intended solely for children of inferior brain power who yet possess sufficient intelligence to be amenable to the discipline of their own homes, and who are capable of benefiting by instruction sufficiently to enable them to pass out of school at the limit of school age with a probability of being able to earn their own living.

Generally speaking, the children admitted to a special school must have been in attendance at the ordinary school for one or two years and have been found not to be making satisfactory progress. As the minimum age for compulsory attendance is six years in Germany, it follows that children attain the age of seven or eight years before they are allowed to enter the special school. The admissions take place as in ordinary schools once a year, and the initiative is taken by the head teachers of surrounding schools, who notifiy their exceptional cases. The children are then visited in their own homes by the head of the special school. In this way he becomes acquainted with the parents and is enabled to enlist their sympathy, at the same time gaining a valuable insight into the child's surroundings. The child may

then be admitted on probation for a few weeks, when he is brought before a committee consisting of the inspector, the school doctor and the teachers of the child.

Among the children presented for admission, many are for various reasons excluded from attending the special school. Blind and deaf cases are properly provided for in institutions. Children who are backward on account of irregular attendance or illness are not considered eligible for special schools. The Congress also recommended that children who were merely backward in one or two subjects of instruction should not be sent to a school for the feeble-minded.

Idiots, epileptics and children with moral perversion are also recommended for exclusion, while a period of probation should be given to cases apparently defective or imbecile. If, after observation, it is found that the deficiency is too severe, and especially at the same time if the home surroundings are detrimental, the child should on exclusion be sent to an institution. On the other hand, a child whose progress is sufficiently favourable, is to be returned to the ordinary school. In well established schools however, it happens very seldom that a child can be returned. It is claimed that children when properly selected will in most cases need the care of the special school till the limit of school age. *See* Appendix II., Frankfurt, Köln and Leipzig.

General lack of progress is accepted as the cardinal sign of mental deficiency in Germany. It is to be noted that no mention was made of the so-called physical signs commonly referred to in the examination of feeble-minded children in England, though poverty of intelligence is not infrequently associated with other pathological defects. A large proportion of children suffer from imperfections in speech. Deafness, blindness and epilepsy may in the same individual be coupled with feeble-mindedness.

According to German statistics 14·40 per cent. of defective children have imperfect speech, ·16 per cent. are aphasic, ·18 per cent. are totally deaf, 3·00 per cent. partially deaf, and 1·15 per cent. are epileptic.

The causes of feeble-mindedness from a medical point of view are difficult to classify owing to the many kinds of deficiency and the variable states of intelligence which are grouped under this one heading, many of which have nothing more in common than a mere negative quality—the inability to learn. At the same time some attempt has been made to refer these forms of sub-normal development to certain pathological antecedents. According to Dr. Müller of Augsburg, heredity is said to claim 70 per cent. of the whole, which means that feeble-mindedness in the child is largely the outcome of evil habits and preventible disease in the parent. The remaining 30 per cent. are to be referred to illness arising after birth, especially the febrile diseases of childhood, to malnutrition, to starvation and neglect.

Statistics are, however, of limited value. They depend largely on family and individual histories which are difficult to obtain

accurately and truthfully, and there is, therefore, room for prolonged and careful research in this field, in order to arrive at evidence upon which absolute reliance can be placed.

The medical jurist would classify cases of feeble-mindedness into two divisions:—the mental and the moral. The mentally deficient exhibits defects of faculty only and is to be known by his weakness of memory, of synthetic and analytic power of thought, together with either a tendency to spontaneous lying or to excessive credulity. The second type or morally defective reveals undue selfishness and egoism, is spiteful or mischievous even to the point of danger, and may betray perverted animal tastes or perverted affection.

The School.

Provision for the education of the feeble-minded may be either by day schools, auxiliary classes in ordinary schools, or by institutions.

The day school is to be recommended for the majority of cases. The institution is essentially for severe cases, and for children who, though capable of some improvement here and there, will never be able to stand alone in the world. An institution may be the best place to send a child where the home surroundings are very unfavourable. At the present time in Germany, the institutions for defective children are private and mainly conducted by religious bodies.

The day schools number 98, and there are in all 326 classes, or an average of three classes to a school. At Leipzig there are, however, as many as 14 classes, at Cologne 11 or 12, and at Frankfurt 6. There are 7,013 children in attendance, and it is estimated that there would be 60,000 if complete provision were made. The number of children in each class varies from 20 to 25. There are 3,940 boys to 3,073 girls, or four boys to three girls. At Leipzig, the proportion is three boys to two girls. So that generally speaking the boys preponderate. Of the 326 classes, 262 are mixed, 28 for boys, 23 for girls, and 13 are classes held in ordinary schools—a method of provision which the conference condemned.

Eighty three per cent. of the children entering day schools are able to earn their own livelihood on leaving. The remaining 17 per cent. return to the community, a burden and a danger.

There is at present no law in Germany governing the education of the feeble-minded, and proposed legislation is partial in that power is sought to establish day schools only. For the 17 per cent. of children who never become anything but dependent, a day school will not suffice. Except for the few hours in which it claims them daily, it leaves them for the major portion of the day exposed to influences which as often as not undo the wholesome tendency of the school. At the limit of school age, they leave to enter the world wanderers in semi-darkness, helpless, aimless and unrestrained, to swell the ranks of crime and vice. The day school is in fact incomplete in itself, so far as it leaves a considerable

proportion of children undeveloped educationally and morally, and some form of institution for the more difficult cases is therefore a necessary and inevitable corollary to any scheme providing for the proper care of the feeble-minded.

The Teacher and the Curriculum.

The teaching is almost entirely in the hands of men. Women are employed mainly to give instruction in needlework and kindergarten. Of 362 members of the Congress about six were women. There is an undoubted advantage in being able to place boys over 12 years of age under men. At that age they are apt to become unmanageable, and require stronger discipline than a woman can be expected to wield. Manual instruction for elder boys ought certainly to be given by male teachers, though a woman teacher is probably better for younger children and for girls generally.

There is no special training for teachers of defective children in Germany. A teacher with special aptitude is appointed from the ordinary school, and it is important to observe that he can be transferred again to the ordinary school at any time without loss of seniority. Special attention is given from the very commencement to articulation and speech, no error or defect of pronunciation being allowed to pass uncorrected. At Leipzig there is a systematic course for the study of voice production, expression, organic defects of speech, correct diction and idiom.

Manual Instruction.—There was a division of opinion among the members of the Congress as to the value of manual instruction to the defective child. The majority were in favour of making it obligatory, and recommended that schemes of manual instruction should be devised not merely as a succession of mental exercises, but that they should also have regard to the main object in educating the feeble-minded—to enable him to lead an independent existence in after life. In all cases manual instruction is better left in the hands of a trained teacher than to a craftsman.

The Leipzig scheme of manual work for boys includes :—

(1.) The performance of set actions and duties.
(2.) Froebel exercises.
(3.) Cardboard modelling.
(4.) Fretwork.
(5.) Woodwork and drawing.
(6.) Industrial occupations: cane weaving, mat making, straw plaiting, and rush plaiting.

For the elder girls there is knitting, crochet, linen marking, darning and mending. There appears to be no provision for cookery or laundry work, and as a rule girls receive less consideration than boys, owing largely no doubt to the deficiency of women teachers on the staff.

Gardening has not been adopted generally, but was recommended by the Congress for inclusion in schemes of instruction wherever possible.

Reading.—Defective schools in England make use of Infant School Readers in the lower stages. In Germany there are no Infant Schools, and therefore no Infant School Readers, and the question of a suitable reading book for defective schools seems to have offered considerable difficulty.

At Leipzig and Frankfurt, speech and articulation lie at the root of all instruction in reading. Germany recognises, more clearly than we have done in this country, the uselessness of attempting to teach a child to read before he can correctly utter the words he is to learn. At all stages clear utterance goes hand in hand with spelling and for years the reading lesson is interrupted for exercise in articulation, often prolonged and sometimes exhausting, but bearing fruit in the clear diction to be found in the upper classes. A large experience has enabled the Leipzig staff to issue a text book suitable for all classes which they were anxious for the Congress to adopt for universal use in the whole of Germany, but no resolution was arrived at owing to differences not so much with reference to the method as to the matter.

The After-care of the Feeble-minded.

When the child reaches the limit of school age, he is in most cases able to find some employment requiring a minimum of skill, and can in time support himself wholly or partially. Of 56 boys leaving the Leipzig school, three entered business with their father, seven became errand boys, nine workmen in factories, four carpenters, four bookbinders, three gardeners, two bootmakers, two cigar makers, two blacksmiths, two painters, one a French polisher, one a butcher, one a baker, one an engraver, one a metal worker, one a fitter, one a brush-maker, one a barber, five were without regular work, three owing to physical weakness as well as mental defect, one on account of epilepsy and one imbecile. There is no information as to the remaining five. Of 32 girls 12 were able to help in the homes and shops of their parents, nine became work girls, four servants, one a nursemaid, one a caretaker, three were unable to work, and there remained two of whom nothing was known. These numbers bear out general statistics offered to the Congress in which 17 to 20 per cent. of all who enter may be regarded as failures. The Congress recommended that those children who turn out to be beyond the scope of the special day school should be transferred at the proper time to institutions of which however there are at present very few, and all either private or belonging to religious communities. The advantage of an institution is that the child becomes accustomed to a secluded life at an early age, and does not feel the restraint irksome at the moment when ordinarily he would be leaving school. He is able, without having to re-accustom himself to new conditions, to avail himself of the advantages which such an

institution frequently offers—a permanent home under capable and sympathetic supervision with activity suited to his strength and power and a life spared from dangerous influences. The community gains by the removal from its midst of an element which may possess all the potentialities of social evil. If he enters as a child, the transition is gradual; there is no apparent break, no appeal to the poor law, as repulsive to a German as to an Englishman, and there is none of the dread of an imbecile ward.

One of the most notable and most recent of these foundations is the Institution at Ursberg in Mindenthal where the Congress met on April 12th. The colony is managed by the Sisters of the Congregation of St. John under the Reverend Superior Dominicus Ringeisen. Founded in 1884 on the site of an ancient monastery, it began work with 34 feeble-minded and cretin inmates. With the expansion of the work, buildings and land have been added and new works completed until at the present time there are 752 mentally defectives, 111 blind, 81 deaf mutes, 145 epileptics. On admission the applicant is enjoined to remain in the Institution for the rest of his days and it is very seldom that an inmate even so much as desires to leave.

For the organisation of this enormous colony of 1,100 abnormal inhabitants, a staff of 453 workers is required, composed entirely of sisters. At the head is the Mother Superior, with thirty sisters, each in charge of a department. In every department there are at least eight assistants. The supply of workers is maintained by a training college which forms part of the colony, where the future sisters, Kandidatinnen, are brought up to the work in which they will afterwards participate, the courses being arranged in three divisions: educational, musical, and industrial.

The colony is self-contained, and provides for its own needs by its own industry. Each branch of the work is managed by a sister and her co-workers and the inmates afford whatever help they can. Among the many avenues of employment are the flour mill, the saw mill, the bakery, the slaughter house, brewery, carpenter's shop, basket and brush shops, weaving shed, chair-caning room, laundry, sewing rooms, cattle sheds, stables, field labour, gardening and heating of the buildings.

The schools provide for the pupils in training and for the defective, blind and deaf children. The defective children include the lowest types, lacking almost any sign of human intelligence. These are kept apart in day rooms and their lives are made as tolerable as possible. The remainder, though capable of instruction, are children who would be considered too difficult for the ordinary special day school and would probably never help towards their own maintenance if left to themselves. They are arranged in eight classes, according to capacity and progress rather than to age. The lower grades are capable of very little in the way of response or of discipline, many of them being undersized and feeble in appearance. Yet some improvement is to be discerned from class to class, and in the upper grades considerable advance has been made, so that however slender the

intellectual attainments may be, the children have learnt to obey. In this way, they are gradually accustomed to the discipline of labour and are led by gentle paths to a useful life where their whole work is to good purpose.

It is an experience which can never be forgotten to witness the energy and sympathy and the good-natured forbearance of the sisters in the management of their afflicted charges. A sister responsible for the saw mill, taking with her own hands no unequal share of the labour; another ordering the brewery with the trained skill of a scientist; a third escorting a company of epileptics from the meadows; a fourth keeping her stud of horses to the envy of many another stable; these are some of the fields which the Sisters of St. John have conquered and often with their own lives, not for themselves indeed, but that the afflicted may find solace through labour in quiet and in peace, far and free from danger.

The organisation and maintenance of the colony are wholly voluntary both as to support and service. Though the State may go far to solve the problem of its feeble-minded, even to endowing colonies such as Ursberg, it may yet feel grateful when voluntary effort steps in, for it is doubtful whether public money alone could ever command the self-sacrifice which such an undertaking demands.

A. EICHHOLZ.

June 17th, 1901.

APPENDIX I.

Summary of Agenda of the Congress.

1. The Reading Book in Defective Schools.—Herr Ehrig, Leipzig; Herr Kielhorn, Brunswick

2. Manual Training for Boys.—Herr Basedow, Hanover.

3. Statistics.—Herr Winterman, Bremen.

4. The Pedagogical and Economic Aspects of the Special School.—H Hanke, Görlitz.

5. Medical Aspects of Feeble-mindedness.—Dr. Muller, Augsburg; essor Stumpf, Würzburg.

6. Resolutions of the Congress.—Herr Kielhorn, Brunswick

APPENDIX II.

Table of German Defective Schools (Hilfsschulen).

No.	Name of Town.	Number of Classes.	Boys.	Girls.	Number of Children returned to Ordinary School in last Three Years.	Number of Hours of Manual Work.		Percentage of Children able to earn after School Age.
						Boys.	Girls.	
1	Aix-la-Chapelle	6	94	94	4	—	4	95
2	Altona	6	99	49	19	3	6	75
3	Apolda	2	20	20	42	2	3	87½
4	Barmen	4	128	103	2	2	2	75
5	Bernburg	1	16	4	—	?	?	—
6	Bonn	3	25	35	1	2	2	50
7	Breslau I.	3	30	22	—	—	2	80
8	Breslau II.	3	36	24	3	—	2	90
9	Breslau III.	2	22	16	—	—	2	7
10	Breslau IV.	2	27	20	4	—	2	100
11	Breslau V.	3	31	21	8	—	2	60
12	Breslau VI.	2	22	20	—	—	2	100
13	Breslau VII.	2	22	21	—	—	2	100
14	Bremen	5	59	51	1	4	4	75
15	Bremerhaven	2	17	14	—	4	4	100
16	Brandenburg	2	17	10	—	4	4	?
17	Braunschweig	9	124	81	1	4	4	80
18	Bromberg	2	28	23	—	2/2	2/2	—
19	Cassel	6	71	38	—	4	4	?
20	Charlottenburg I.	4	50	30	6	3	3	76
21	Charlottenburg II.	5	56	28	2	3	3	100
22	Chemnitz	6	73	54	26	—	2	?
23	Cottbus	3	28	26	1	4	4	83½
24	Darmstadt	3	43	25	—	2	4	—
25	Dessau	1	7	13	—	?	?	—
26	Dortmund	2	25	16	14	—	2	80
27	Dulsden I.	6	65	55	—	4	4	78½
28	Dresden-Löbtau	1	29	1	—	—	—	—
29	Düsseldorf	7	108	92	2	—	3	96
30	Eisenach	2	12	11	4	2	4	80
31	Elberfeld	6	87	74	3	2	4	92
32	Erfurt	5	49	32	12	4	4	82
33	Essen a.d. Ruhr I.	3	30	43	—	2	4	12
34	Essen a.d. Ruhr II.	3	40	36	2	2	4	88·8
35	Freiberg	2	45	39	11	—	2	100
36	Frankfurt a.M.	7	88	65	12	4	4	?
37	Fürth	1	11	10	—	2	2	—
38	Gera Reuss	3	36	29	—	4	4	75
39	Giessen	?	6	5	—	—	—	—
40	Glauchau	?	52	21	?	—	—	—
41	Görlitz	3	21	25	36	4	4	54
42	Gotha	3	37	43	—	4	4	75
43	Göttingen	2	23	13	13	—	2	85·5
44	Grimma i. S.	1	4	4	2	—	—	—
45	Hagen i. W.	1	18	7	—	—	—	—
46	Hamburg I.	4	51	29	4	—	2	100
47	Hamburg II.	4	85	—	1	—	—	50
48	Hamburg III.	6	141	—	3	—	—	97
49	Hamburg IV.	5	—	106	2	—	1	77
50	Hamburg V.	4	—	92	11	—	3½	85
51	Hamburg - Eimsbüttel.	3	37	18	—	—	2	—

APPENDIX II.—*continued.*

No.	Name of Town.	Number of Classes.	Boys.	Girls.	Number of Children returned to Ordinary School in last Three Years.	Number of Hours of Manual Work. Boys.	Number of Hours of Manual Work. Girls.	Percentage of Children able to earn after School Age.
52	Hanau	1	16	13	4	—	2	—
53	Halle a.S.	5	68	54	31	2	2	?
54	Halberstadt	2	46	24	5	4	2	80
55	Hanover I.	6	78	60	—	2	4	—
56	Hanover II.	3	40	35	—	2	6	—
57	Jena	5	31	11	4	4	4	40
58	Kaiserslautern	1	13	13	10	2	2	30
59	Kamenz*	—	—	—	—	—	—	—
60	Karlsruhe	3	36	37	1	—	—	50
61	Königsberg I.	4	28	18	9	4	4	10
62	Königsberg II.	4	34	26	3	4	4	50
63	Königshütte	2	21	28	19	—	—	100
64	Köln (Cologne)	12	180	164	15	2	4	85¼
65	Krefeld	4	67	48	8	—	2	51
66	Leipzig I.	14	108	86	1	6	6	90
67	Leipzig II.	3	32	11	—	4	4	?
68	Leipzig III.	2	22	11	—	6	6	—
69	Lüneburg	1	9	8	39	2	4	—
70	Linden	2	22	27	4	—	2	—
71	Lübeck	6	64	48	—	4	6	80
72	Ludwigshafen	1	12	15	11	2	2	80
73	Magdeburg	10	135	117	46	4	4	60
74	Mayence	3	41	32	7	2	3	65
75	Meiningen	2	5	14	—	—	2	—
76	Mülhausen (Alsace).	2	25	25	77	—	3	88
77	Mülhausen (Thüringen).	1	17	7	—	2	4	—
78	Netzschkau	2	25	18	—	2	3	100
79	Nordhausen	2	20	18	4	4	4	90
80	Nüremberg	6	71	64	4	2	2	56
81	Ölsnitz	2	—	—	—	—	—	—
82	Osnabrück	2	22	17	—	4	4	—
83	Oschatz	1	9	7	—	—	4	100
84	Pforzheim	1	20	12	—	—	4	100
85	Pirmasens	1	12	16	—	—	2	—
86	Plauen	6	61	56	2	2	2	?
87	Posen	3	35	29	—	2	2	—
88	Reichenbach	2	22	23	28	—	—	—
89	Schwelm	1	17	14	—	2	2	—
90	Strassburg	3	40	23	6	3	3	71·5
91	Stettin	2	14	27	—	—	2½	80
92	Stolp	1	11	9	—	1	1	—
93	Steglitz	1	19	10	1	2 in summer. 4 in winter.	4	75
94	Stuttgart	1	7	7	3	2	2	50
95	Weimar	1	12	10	6	2	2	60
96	Witten†	1	13	12	—	—	—	—
97	Wilmersdorf	1	14	6	—	4	4	—
98	Worms	1	21	13	—	2	2	—
99	Zittau	1	14	8	1	2	4	80
100	Zwickau	4	56	34	1	2	2	90

* Auxiliary classes attached to ordinary school.
† The school has only been recently opened.

ON THE EDUCATION OF NEGLECTED CHILDREN IN GERMANY.*

Child-Crime and its Prevention.—The opinion is more and more gaining ground that the most effective means of combating crime is not in subjecting children to treatment as criminals. More and more it is recognised that the real question is not how to improve youthful criminals after they have got within the meshes of the law, but to prevent them from becoming criminals. How little can be accomplished by the former method is shown by the increasing juvenile criminality in Germany.

According to the official Criminal Statistics for 1896,† in the German Empire in the year 1882, 30,697, and in the year 1896, 43,962, "young persons"—*i.e.*, between twelve and eighteen years—were punished for crimes and offences against the laws of the Empire (all minor offences are excepted). This means an increase of 43.2 per cent., and in relation to population an increase of 22 per cent. Crimes by adults increased during the same period only 34.1 per cent., or 16 per cent. relatively to population. A very considerable part of this increase is in convictions for dangerous injuries to the person (112.5 per cent.), for injuries to property (48 per cent.), and for using compulsion and threats (about 300 per cent.).

Neglect and the State.—The new law, which came into force in Germany on January 1st, 1900, as also the corresponding Land Laws, were intended to effect a change as to this class of crime and to adopt, to some extent, new methods. It was assumed that the right of parents to educate their children was subordinate to the right of the State to prevent children being ruined through neglect. If through want of proper education, it was said, the number of criminals increases, the community is the sufferer. On this ground, and as the guardian of public morals, the State possessed a right and an interest in concerning itself with education. The interference on the part of the State in the education of minors is no longer regarded as a repressive, but as a preventive, measure. In the preparation of the law special and repeated reference was made to the experience acquired in England, where the State and private benevolence have taken in hand the education of juveniles with good results.

The Prussian law of July 2nd, 1900, which came into force on

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* Reprinted by permission of the Society of Comparative Legislation from the *Journal of the Society of Comparative Legislation*, New Series, No. VII., June, 1901.

† See "Statistik des Deutschen Reiches," vol. xcv. i., p. 28.

April 1st, 1901, for the "guardianship education" of minors (*Fürsorge-Erziehung Minderjähriger*) is a part of the legislation regarding the education of neglected children. In order to correctly understand and appreciate the new law, a short explanation is necessary of the previous state of the law on this subject.

Offenders under Twelve.—According to the Imperial Penal Code (sec. 55), no penal proceedings can be taken against persons who have not yet completed their twelfth year. They may be placed in a family,* or in a school or reformatory, if the judge of the Court of Ward (not the judge of criminal cases) shall have previously satisfied himself as to the commission of the offence, and declared that it is expedient to place the culprit in a family or reformatory. Persons from twelve to eighteen years of age—minors in the stricter sense of the word—can be dealt with by the judge of criminal cases. They are, however, to be released if in the commission of the offence for which they are charged they did not possess sufficient intelligence to perceive the culpability of the offence. In such a case the culprit may be either handed over to a family or sent to a school or reformatory (Penal Code, sec. 56). The State, it will be seen, interferes in education only when a punishable offence has been committed.

Operation of the Old Law.—Many of the German States have availed themselves of the provisions of sec. 55. A Prussian law of March 13th, 1878, relating to the provision for neglected children enacts that "whoever commits a punishable offence after the completion of the sixth year and before the completion of their twelfth year of age may be placed in a family, or sent to a school or reformatory, if this course is *necessary*, taking into consideration the nature of the offence, the character of the parents or other guardian of the children and the other conditions of life, in order to prevent *further* neglect."

In order that the provisions of this law might take effect, two conditions were necessary—the commission of a punishable offence and *de facto* neglect. The right of compulsory education ceased with the completion of the eighteenth year of age or with a decision putting an end to compulsory education. Children of from six to twelve years could not, if they were able to understand the culpability of the offence (and could therefore be dealt with), be sent to a reformatory school. On the other hand, children from six to twelve years, even when there was *de facto* neglect and a clear necessity of provision being made for them, could not be compulsorily educated when there was no evidence of a punishable offence committed by the child.† To neglected children who had not

* Only permissible since January 1st, 1900.

† This was the principal fault of the Prussian law. See thereon, especially, Appelius's book, "Behandlung jugendlicher Verbrecher und verwahrloster Kinder," Berlin, 1892, p. 115. Other Laws—for example, those of Hesse and Baden—went farther; they ignored the requirement that the child must have committed a punishable offence, and authorised

yet committed any punishable offence, only the provisions of the Prussian Allgemeines Landrecht of February 5th, 1794 (sec. 86, Part II., 2), applied: it allowed interference by the State with the parental right of education, against the will of the parents, but only when the parents were culpable—that is to say, when they cruelly maltreated their children, or brought them up in evil ways, or deprived them of necessary support.

Neglected Children not Criminals—Conditions of State Intervention.—The state of the law which I have described could not be regarded as satisfactory. The Code of Civil Law which came into force on January 1st, 1900, applies to such cases. First of all it leaves the above-mentioned provisions of the Penal Code unrepealed, and they still apply to all cases where the neglect of the child results in a punishable offence, the punishment for which is not inflicted owing to the tender age of the child or to its being unable to understand the culpability of the offence. The Civil Code, however, contains also provisions with regard to neglected young persons who are not criminals. It permits the public education of a child without the latter having committed a punishable offence when the father or other person acting as parent (the mother or guardian) is guilty of a neglect of education. Thus, under sec. 1666 the Court of Ward (not that of Administration) is empowered to take the necessary measures for removing the danger "if the mental or bodily well-being of the child is endangered" (not simply prejudicially affected). "Endangered" includes these cases: (*a*) where the father abuses his right to take care of the person of the child; (*b*) where he neglects the child; or (*c*) if he is guilty of dishonourable or immoral conduct. The measures which are permitted may especially, though not exclusively, consist of the child being, for the purposes of education, placed in a suitable family or in a school or reformatory. An essential condition, it will be noted, is some offence by the father or mother, if they exercise the parental authority; as, for instance, if the father should employ the child in criminal or immoral acts; if he should abuse his right of chastising in such a way as to be dangerous to the child; if he should deprive a child a few months old of its mother without sufficient grounds;* if, owing to his being imprisoned, he is not in a position to provide for the maintenance and education of his child.† The above-mentioned cases illustrate clause (*a*); illustrations of clause (*b*) will be as follows: neglect to send to school, insufficient food, clothing and bodily attention; of (*c*): alcoholism, personal violence, begging, prostitution, procuration of the father

compulsory education even in the case of the moral neglect of the child. Others again—as, for instance, those of Saxony and Wurtemburg—extended the age limit up to which the order for compulsory education should be permissible to beyond the twelfth year.

* Oberlandesgericht Stuttgart in the "Deutsche Juristen Zeitung," vol. v., p. 399.

† Kammergericht in the "Rechtsprechung der Oberlandesgerichte," vol. i., p. 286.

as regards the mother. The conduct of the father in religious or political matters is not a ground for the intervention of the Court of Ward; this has been expressly recognised by the Legislature.

If the child be under the charge of a guardian and there be reason to fear continued neglect, the judicial authority may place the the child under compulsory education (sec. 1838), even when the guardian is in no way responsible for the defective education. If in this case the care of the person of the child devolves on the father or the mother, the placing of the child under compulsory education can be effected only under sec. 1666—*i.e.*, where the parents are guilty of a neglect of education. With the consent of the father, and on his application, compulsory education is also permissible according to the Imperial law (sec. 1631).

Opposition of Person "in Loco Parentis."—After a long parliamentary contest, the principle has been established by legislation (by the *Einführungsgesetz* of the Civil Code, Art. 135) that, independently of evidence of a fault on the part of the person acting as parent, the compulsory education of the child may be ordered even against the expressed wish of such persons "if it is *necessary* in order to prevent *complete* moral ruin."

"*Guardianship Education.*"—By the law of July 2nd, 1900, mentioned above, Prussia has availed herself of this right. The object of this law, which repeals the old Prussian law of March 13, 1878, is interference on the part of the State not only, and not merely, when the child is *already neglected*, but *also when it displays evidence of neglect*. This is shown by the altered title of the law and the alteration in the wording thereof. It is no longer a "compulsory education" which is spoken of, but a "guardianship education" (*Fürsorge-Erziehung*), an expression with which the German language has been enriched through this law; not "compulsory," implying reaction against, but "guardianship," implying protection against neglect. This "guardianship education," which practically amounts in many cases to a complete separation of the child from its family, is only to be resorted to if all other available measures for obtaining a proper education fail Such other means are religious influence, schooling, the guardianship of the poor, voluntary charity and also the admonishing of the person acting as parent. By law the "guardianship education" can only be ordered in the case of such minors as have not yet completed their eighteenth year (sec. 1).

Unlike the pre-existing law of Prussia, the new law does not fix a minimum age; it thereby considerably increases the number of those persons to whom the State education may apply. It is, however, laid down that children not yet of age to go to school shall only be put under a "guardianship education" if no other measure can be found to prevent the neglect of the child.

In what Cases Permissible.—In three different cases the "guardianship education" is permissible under the law:—

(1) When the provisions of the above-mentioned sec. 1666 or

1838 of the Civil Code apply, and the "guardianship education" is necessary in order to prevent the neglect of the minor—in other words, in case of the father or other person acting as parent (except the guardian) being guilty of a fault of education. It is sufficient that a danger of neglect, whether of moral, mental, or bodily kind should exist; it is not necessary that complete neglect should exist. Examples are given above.

(2) If the minor has been guilty of a punishable offence for which, on account of his tender age, the punishment cannot be inflicted. This applies only to minors under twelve years; but the "guardianship education" must be ordered only after taking into consideration the nature of the offence, the character of the parents, and the other conditions of life, with a view to preventing further neglect of the minor; it must, in fact, be applied as under the former Prussian law, taking into account the whole facts of the case as affecting the mental and material well-being of the particular child. Cases 1 and 2 differ in this, that in the latter a punishable offence (no matter of what kind) committed by the minor and *de facto* neglect (the one does not necessarily imply the other) must exist. The new case is of particular importance, viz.—

(3) If "guardianship education" is necessary in cases other than those above mentioned "on account of inadequate educational influence of the parents or others responsible for the education or of the school, *with a view to prevent the complete moral ruin of the minor.*"

The novel feature of this Statute, and the great advance which it makes, is that there may be "guardianship education" without any fault on the part of a minor or of his parents; though, in order that this may be so, there must be degeneracy of the minor in a moral sense. This will make it possible to bring under compulsory education children who throw off or resist the control of parents and guardians, who frequent bad company against the wishes of their elders, and especially females under age who have given themselves up to professional prostitution, or who are likely to do so. The law will apply in the first instance to children of the poorer classes; but it may be here especially pointed out that also children of well-to-do and rich parents may be placed under "guardianship education," and especially from the point of view mentioned under No. 3.

In view of the far-reaching effect of this enactment I concur in the opinion of a German *savant*,* who says: "Truly it is a heavy blow which is hereby directed against the *patria potestas*, but a blow which is necessary."

How Carried Out—"Suitable Family or Institution."—The "guardianship education" will be "under official supervision and at the public expense" in a suitable family or in an educa-

* v. Calker in the "Deutsche Juristen Zeitung," vol. v., p. 56.

tional or correctional institution (sec. 2). By this clause the difference between the compulsory education provided for in the Civil Code and the "guardianship education" of the present law is defined in the first instance in so far as the latter education takes place at the public expense under the supervision of special Government departments. In both cases the question whether compulsory education or "guardianship education" is to apply is to be decided by the Court of Ward. The latter also decides as to the manner in which the child is to be provided for under compulsory education. The manner of providing for the child under "guardianship education" and the nature of the education itself are left to the discretion of the Government Board of Management. The Court decides upon request or *ex officio* that "guardianship education" is to take place; the class of persons either entitled or bound to make such requests (everybody is entitled to give notice) is defined by sec. 4. If the parents and the legal representative of the minor can be heard without considerable difficulty, they should be heard, and the director or teacher of the school at which the minor in question attends *must* be heard before the Court comes to a decision. There is a right of appeal against the decision ordering "guardianship education" (sec. 4). Minors may be provided for in various ways, either in a suitable family or in an educational or correctional establishment. The Legislature has deliberately declined to determine when education in a family and when education in an institution is to be made use of. In each separate case there is to be a decision according to the peculiarities of the pupil, the kind and the causes of his or her degeneracy and the possibility of finding suitable families.* Neither does the Legislature define whether and when a family is "suitable"; it only insists that "the pupil must be accommodated in a family of his or her own persuasion for the time at least during which he or she is liable to attend school" (sec. 9). As to this matter, rules have been drawn up by the administrative authority. The family "shall offer guarantees for a serious religious and moral education"; it must have a well-regulated and sufficiently large home. Families living in the country or in small towns, where the pupils may have an opportunity of occupying themselves with agricultural and garden work, are to be especially preferred. Families living in large towns or densely populated industrial districts are to be avoided as far as possible. The family should not live too near the present place of abode of the pupil, and not more than one pupil should be accommodated in one family. The "guardianship education" conducted in the pupil's own family may be allowed only subject to the permission being revocable (sec. 10), and it shall only be ordered if the conditions which caused degeneracy have been removed. For every pupil accommodated in a family a "curator" is appointed to watch over his or her education and maintenance (sec. 11). This

* Compare in this connection Aschrott, "Die Zwangserziehung Minderjähriger" (J. Guttentag: Verlagsbuchhandlung, Berlin, 1900), p. 41.

office, which is honorary, may be filled by women; for children under twelve years of age and for female pupils women are to be preferred as curators. As to education in institutions, the pupil "as far as possible" is to be accommodated in an institution of his or her own persuasion. In no case may pupils be placed in workhouses or country almshouses. They may be placed in institutions for the sick, infirm, lunatic, deaf and dumb, or blind only so long as may be required by their physical or mental condition (sec. 10). Such institutions must offer opportunities for occupying the pupils out of school hours (the course of instruction to correspond to that of the primary schools) with work in the field, garden, and house. They should be arranged to accommodate from one hundred to one hundred and fifty pupils, and separation of the sexes must be observed. The education in institutions, however, shall continue so long as is absolutely necessary for making the pupil used to good order and discipline, and for strengthening him physically and mentally. When this result has been obtained, the pupil is, according to the rules of the administration, to be placed in a family for his or her education—with the reservation that he or she will be sent back to the institution if he or she should not behave in a proper manner.

Termination of "Guardianship Education."—"Guardianship education" ends when the pupil comes of age (sec. 13)—*i.e.*, after the completion of twenty-one years. It may, however, be terminated sooner by a decision of the administrative authority on his own initiative or upon demand, if the purpose of the "guardianship education" has been obtained or the purpose in view has otherwise been secured (sec. 13)—*i.e.*, if the pupil is under absolutely safe conditions, which make a relapse into degeneracy, so to say, impossible. For this purpose it is stipulated by the administrative authorities that before completion of the time during which the pupil is liable to attend school, a place of service or an apprenticeship with trustworthy and experienced persons shall be provided. The situation must be suitable to his capabilities and conditions of life and, if possible, in accordance with his inclinations. The termination of the "guardianship education" before its due course can take place under reserve of revocation; in such a case the condition will apply that the minor submits to the supervision ordered by the administrative authority.

Expenses and Accommodation.—It is not possible to explain here in detail the conditions as to expenses and the questions as to authorities on whom it devolves to find accommodation for minors. The following remarks may be sufficient: In the first instance the provincial associations (*Provincialverbände*) are under the obligation of establishing educational or correctional institutions. The principal expenses for maintenance and education, and for providing for discharged pupils, are to be borne by the communal associations (*Kommunalverbände*); the Government contributes two-thirds of these expenses. The communal associations

have the right to recover from the pupils, or the persons liable to maintain the same. The law (sec. 5) provides further for a "provisional disposal of the minor," if danger is to be feared. In these cases also the Court of Ward decides on the matter. Finally, there is a new penalty clause with the object of securing the carrying out of the "guardianship education." This clause threatens—independently of unlawful deliverance of prisoners punishable by Imperial law (Penal Code, sec. 120) and of kidnapping (Penal Code sec. 235)—with imprisonment up to two years, with a fine up to one thousand marks, or with any one of these penalties, the person withdrawing any minor respecting whom legal proceedings have been commenced in order to bring the same under "guardianship education," or who has been ordered to undergo "guardianship education," from such said proceedings or such "guardianship education," or inducing the same to withdraw from such process or such "provident education" or intentionally assisting him or her in doing so. The attempt also is punishable. Self-withdrawal, on the other hand, goes without punishment. The law leaves open the question whether foreigners can be subjected to "guardianship education." The question may be answered in the affirmative in case a foreigner according to the laws of his country requires the care of a guardian and the foreign State, upon request of the German Court does not undertake such duty. This is a corollary from the *Einführungsgesetz* of the Civil Code, Art. 23.

The Aim of the Legislation—The Moral Training of the Young.—From this short sketch it appears that the leading idea of the new law is to attempt to prevent the demoralisation of youth by a thorough dissemination of moral principles. The law leaves free play to the activity of guardianship and educational associations and to charity which seeks to act, not so much by giving monetary assistance, as by the force of moral example and restraint. The administration of this law in the manner intended by the Legislature will be the best answer to these words lately uttered by a high German Government official: "The law which makes the judge of the Court of Ward the custodian of youthful persons contrary even to the wishes of their parents implies a terrible accusation against society."

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