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HANDBOOK OF SUGGESTIONS

FOR THE CONSIDERATION OF TEACHERS
AND OTHERS CONCERNED IN THE WORK
OF PUBLIC ELEMENTARY SCHOOLS



BOARD OF EDUCATION

LONDON:

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CONTENTS.

	PAGE
PREFATORY NOTE	3
CHAPTER I. INTRODUCTION	5
CHAPTER II. ENGLISH	63
CHAPTER III. HISTORY	112
CHAPTER IV. GEOGRAPHY	140
CHAPTER V. ARITHMETIC AND ELEMEN- TARY MATHEMATICS ..	169
CHAPTER VI. THE STUDY OF NATURE ..	217
CHAPTER VII. MUSIC	237
CHAPTER VIII. DRAWING	267
CHAPTER IX. HANDWRITING	311
CHAPTER X. HANDWORK	327
CHAPTER XI. NEEDLEWORK	353
CHAPTER XII. HOUSECRAFT	368
CHAPTER XIII. GARDENING	385
CHAPTER XIV. PHYSICAL TRAINING AND HEALTH EDUCATION ..	411
APPENDIX A. BACKWARD CHILDREN ..	422
APPENDIX B. THE LEAGUE OF NATIONS	428
INDEX	451

PREFATORY NOTE.

In its aims and content the present volume of Suggestions does not differ materially from previous editions. It does not pretend to be an exhaustive compendium of the subjects to be taught or of the methods to be adopted in teaching, but it is an attempt to bring together a body of opinion and practical experience of which it is hoped teachers will take advantage as their opportunities permit. The Suggestions remain "Suggestions for the consideration of teachers and others concerned in the work of Public Elementary Schools," and should be regarded as a challenge to independent thought on the subjects treated.

The Board desire to re-affirm the statement made in the following paragraph of the original Prefatory Memorandum :—

"Neither the present volume nor any developments or amendments of it are designed to impose any regulations supplementary to those contained in the Code. The only uniformity of practice that the Board of Education desire to see in the teaching of Public Elementary Schools is that each teacher shall think for himself, and work out for himself, such methods of teaching as may use his powers to the best advantage and be best suited to the particular needs and conditions of the school. Uniformity in details of practice (except in the mere routine of school management) is not desirable even if it were attainable. But freedom implies a corresponding responsibility in its use."

No detailed reference is now made in the Code to the subjects of the curriculum. As is pointed out in Circular 1375,

"Certain subjects of the curriculum are required by statute as, for instance, the provision of 'practical instruction' under Section 20 (1) of the Education Act, 1921. The list of additional subjects hitherto included in the Code probably represents a general consensus of opinion throughout the country as to the subjects suitable for children of elementary school age, but it is, and has long been, open to an Authority to vary the curriculum and there seems to be no sufficient reason for retaining in Grant Regulations a list which derives its authority from general agreement rather than from any exercise of the Board's statutory powers. The curriculum of a school will remain subject to the

general approval of the Board, but detailed comment or advice on the syllabus will in future be confined to the volume of ' Suggestions for Teachers and Others concerned in the work of Public Elementary Schools.' "

Since this volume is now the main channel for the expression of the Board's views on curriculum, a knowledge of its contents should be regarded as part of the necessary equipment of every teacher.

The Board fully realise that the standard and practice of teaching contemplated in this volume are not within the reach of every school, and in particular they recognise that the suggestions in their entirety cannot always be carried out in small rural schools or schools in very poor neighbourhoods. Teachers will naturally adopt special expedients to meet special needs. But it is hoped that every teacher will find encouragement and guidance in the consideration of what is being attempted and increasingly attained in a large number of our Public Elementary Schools.

This edition is more than a reprint. Though the volume contains much that appeared in the last edition, many of the chapters have been rewritten, and considerable additions and modifications have been made, particularly in view of the recent Report of the Consultative Committee, on *The Education of the Adolescent*.

Two Appendices have been added. Appendix A. supplements the section on Backward Children in the Introduction (Chapter I § 23), and consists of an extract from a memorandum by Dr. Cyril Burt, for permission to reprint which the Board are indebted to the London County Council. Appendix B. expands the reference made to the League of Nations in the chapter on History (Chapter III § 10), and contains a brief sketch of the origin, objects and activities of the League.

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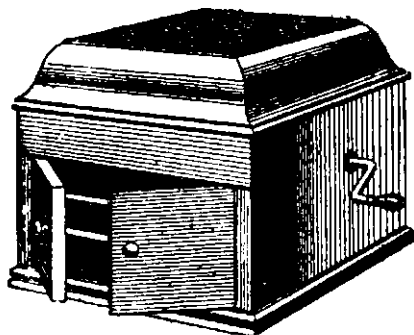
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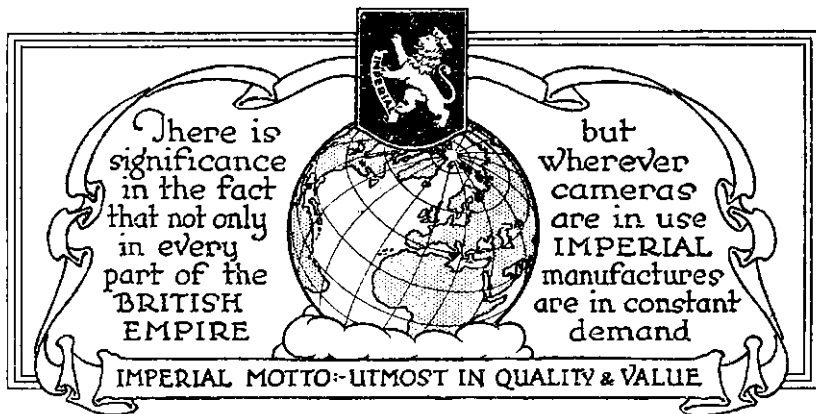


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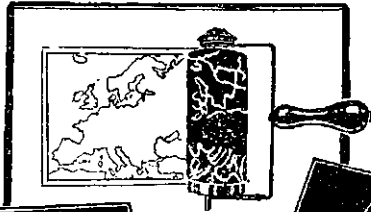
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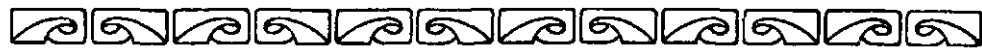
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CHAPTER I.

INTRODUCTION.

SUMMARY OF CONTENTS.

I. GENERAL AIM OF THE ELEMENTARY SCHOOL.

Section.

1. The Introduction to the Code, 1904-1926.
2. The Need for a Broad Conception of the Purpose of the School.
—Practice should be constantly reviewed in the light of purpose.

II. THE TRAINING OF CHARACTER.

3. Character Training the Teacher's Chief Responsibility, provided that "character" is not interpreted too narrowly. Character training not a "subject" but, in the main, an indirect process.
4. Discipline.—External control and free discipline contrasted. The difference between their ultimate effects on character.
5. Intellectual Character.—The inclination to use the mind. How this should be cultivated.
6. Lasting Intellectual Habits not formed under Artificial Conditions.—Internal rather than external motives to be relied on. The gulf between school and the outside world. Means of bridging it. Importance of linking school work with children's natural instincts and interests. Unlimited

Section.

freedom not possible ; the school course should be planned by the teacher, but the scholars should appreciate the reasons underlying it, and use it as a means of enlarging their lives.

7. **Interest and Drudgery.**—Drudgery necessary but should not be devoid of expectation.
8. **Emotional Character.**—The arts as means of training the emotions. Their importance in education.
9. **Moral Character.**—The planning of school life with a view to moral training. Prefects and Monitors. Social responsibility. Team work. School societies. " House " system.
10. **Direct Moral Training.**—Based on reason. Based on conscience and religion.

III. EXTERNAL FACTORS IN EDUCATION.

11. **Local Authorities and Voluntary Help.**—Types of helpers and their scope. " Education weeks."
12. **Influence of the Home.**—Value of close relationship between school and home. Means of promoting it.

IV. PHYSICAL WELFARE.

13. **Health a Primary Consideration, for pupils and teachers.**
14. **Premises and Equipment.**—Details needing attention. Misuse of cloakrooms, etc., to be avoided.
15. **The Mid-day Meal.**—Provision and superintendence.
16. **Physical Training and Games.**

V. INFLUENCE OF SURROUNDINGS.

17. **Importance of the Example set by the School.**—The formation of orderly habits of life. The development of good taste and a sense of beauty. The choice of pictures.
18. **Pictures as Means of Instruction.**—Their classification and storage.

VI. THE HEAD TEACHER.

19. **Teaching and Supervision.**—Value of periodical conferences.
20. **The Training of Young Teachers.**—Pupil teachers, student teachers and teachers fresh from College.

Section. VII. ORGANISATION.

21. Schemes of Work.—Collaboration of head teacher and staff.
22. Classification and Promotion.—The problem of securing flexibility.
23. Backward Children.—Definition of backwardness. Organisation and classification. Curriculum and methods.

VIII. THE CURRICULUM.

24. Choice of Subjects.—May vary with the qualifications of the teachers.
25. Requirements of the Scholars should also be taken into account.
26. The Small Rural School.

IX. STAGES OF SCHOOL LIFE.

27. The Four Stages.

(i) THE NURSERY STAGE.

28. The Treatment of Children under Compulsory School Age.—The question of environment. Physical requirements. Sleep. Cleanliness. Meal times. Medical supervision.
29. The Formation of Mental and Social Habits.—Speech training. Motor and sensory training. Social training. Collective work.
30. Formal Classification not Necessary.

(ii) THE INFANTS' STAGE.

31. Range of the Infants' Stage.—Age: five to eight. The "three R's."
32. Curriculum and Method.—Speech-training. Stories. Hand-work and other means of rousing interest. "Individual methods." "Subjects."

(iii) THE JUNIOR STAGE.

33. Method and Content of the Teaching.
34. Standard of Attainment at the End of the Junior Stage.

(iv) THE SENIOR STAGE.

35. Method and Content of the Teaching.—Self-education the key-note. Use of books. "Advanced instruction." Time Table. Duties and privileges. The head teacher's work.

Section.

36. **Organisation.**—Proper grouping necessary to avoid marking time. Planning of syllabuses. Central Schools.

X. EXAMINATIONS.

37. **The Internal Examination.**—Its value and importance.
-

I. GENERAL AIM OF THE ELEMENTARY SCHOOL.

1. **The Introduction to the Code, 1904-1926.**—“ The purpose of the Public Elementary School is to form and strengthen the character and to develop the intelligence of the children entrusted to it, and to make the best use of the school years available, in assisting both girls and boys, according to their different needs, to fit themselves, practically as well as intellectually, for the work of life.

“ With this purpose in view it will be the aim of the School to train the children carefully in habits of observation and clear reasoning so that they may gain an intelligent acquaintance with some of the facts and laws of nature ; to arouse in them a living interest in the ideals and achievements of mankind, and to bring them to some familiarity with the literature and history of their own country ; to give them some power over language as an instrument of thought and expression, and, while making them conscious of the limitations of their knowledge, to develop in them such a taste for good reading and thoughtful study as will enable them to increase that knowledge in after years by their own efforts.

“ The School must at the same time encourage to the utmost the children’s natural activities of hand and eye by suitable forms of practical work and manual instruction ; and afford them every opportunity for the healthy development of their bodies, not only by training them in appropriate physical exercises and encouraging them in organised games, but also by instructing them in the working of some of the simpler laws of health.

“It will be an important though subsidiary object of the School to discover individual children who show promise of exceptional capacity, and to develop their special gifts (so far as this can be done without sacrificing the interests of the majority of the children), so that they may be qualified to pass at the proper age into Secondary Schools, and be able to derive the maximum of benefit from the education there offered them.

“And, though their opportunities are but brief, the teachers can yet do much to lay the foundations of conduct. They can endeavour, by example and influence, aided by the sense of discipline which should pervade the School to implant in the children habits of industry, self-control, and courageous perseverance in the face of difficulties; they can teach them to reverence what is noble, to be ready for self-sacrifice, and to strive their utmost after purity and truth; they can foster a strong sense of duty and instil in them that consideration and respect for others which must be the foundation of unselfishness and the true basis of all good manners; while the corporate life of the School, especially in the playground, should develop that instinct for fair-play and for loyalty to one another which is the germ of a wider sense of honour in later life.

“In all these endeavours the School should enlist, as far as possible, the interest and co-operation of the parents and the home in an united effort to enable the children not merely to reach their full development as individuals, but also to become upright and useful members of the community in which they live, and worthy sons and daughters of the country to which they belong.”

2. The Need for a Broad Conception of the Purpose of the School.—The above statement of the purpose of the Public Elementary School formed the Introduction to the Code from 1904 till 1926. It has met with general acceptance and is here reproduced unaltered. In the present volume the various subjects of the curriculum are dealt with seriatim. But while a due degree of proficiency in these subjects is a necessary outcome of a rightly ordered education, this introductory statement looks upon the teaching

of the various subjects and the other activities of the school in the light of their contribution towards a general purpose ; as means, that is, rather than as ends. It is worth while at the outset to emphasise this broad conception of the purpose of the Elementary School. Preoccupied as teachers must be with means, they sometimes tend to allow the real end of their work to become obscured. When this happens the loss of that inspiration which a strong sense of purpose affords may cause them to lapse into monotony and routine. Or, on the other hand, they may unconsciously substitute means for ends, allowing certain subjects or methods in which they are keenly interested to take the place of their original aims. In that case their teaching may come to lack proportion, or fail in other ways to meet the actual needs of their pupils. Every teacher should endeavour to conceive his main purpose as clearly as possible and should constantly review his actual practice in the light of that purpose.

II. THE TRAINING OF CHARACTER.

3. Character Training the Teacher's Chief Responsibility.
—English educators have always professed to regard character training as the chief of their responsibilities, but their actual practice has not always borne out such a profession. Character has been too narrowly interpreted ; its intellectual and emotional sides have been insufficiently recognised ; and it has been too lightly taken for granted as an automatic product of time-honoured systems. Various digressions from the conventional school routine which thoughtful teachers have devised with character training in view, are sometimes slightly referred to as superfluous accessories because the purpose they serve is not properly recognised. But when it is remembered that character training is, broadly considered, a matter of forming certain habits, whether intellectual, emotional, or moral, it will at once be realised how vigilantly the teacher must watch the reaction of the children to their school life and what careful adjustment of means to ends he must devise.

Character training cannot be treated as a subject, nor does it produce quick returns that can readily be measured or assessed. It can, indeed, be assisted, to a certain extent, by direct methods, and the recognition of its importance by critics of education is frequently accompanied by demands for more direct moral instruction. But in the main character training must be an indirect process. Yet the result will be by no means a by-product : the aim of the teacher will be conscious and direct. And the briefness of the teacher's opportunities will intensify the regard which he will need to pay to this aspect of his work. In the case of those scholars who pass on to Secondary Schools or other educational institutions, his responsibilities are less comprehensive. Others will continue the work that he has begun. But he will be acutely conscious that the education of most of his pupils ends when they leave the Elementary School, and this fact will greatly influence his estimate of their educational needs.

It is not possible to discuss fully here the particular methods by which teachers may endeavour "to form and strengthen the character of the children." They will be largely personal to each teacher. But it is possible to indicate certain general principles which should be borne in mind.

4. Discipline.—The different aspects of character training, intellectual, emotional and moral, may to some extent be considered separately, but they cannot be dissociated in practice. All these aspects, for instance, are involved in the first task which confronts the teacher, that of establishing discipline. Here a distinction may at once be drawn between the teacher who regards discipline merely as a means for enabling the ordinary classroom work to be carried on, and the teacher who regards it as an end, a habit to be developed, a constituent of character. The former will think it more or less immaterial what methods he employs to maintain order and he may find an enforced, external and repressive discipline the easiest to secure. Such a discipline may serve its immediate purpose well enough but it will be thrown off as soon as the children are

out of reach of the teacher who imposes it. The latter will aim at a discipline which arises naturally from a mutual understanding between himself and his pupils. Such a discipline is free; it is the children's as much as the teacher's; they have accepted it themselves as a reasonable condition of school life and will be disposed to accept it as a reasonable condition of life after leaving school. Discipline of this kind is far more beneficial in its ultimate results than that of the so-called born disciplinarian who has been content to rely on his gift of external control. It cannot, however, be achieved at once. The teacher may find it necessary to depend, at first, upon firm external control, and afterwards, upon occasion, to resort to it. But he should not be satisfied until in the normal conduct of the class external control has been superseded by a spirit of co-operation.

One matter of considerable importance should be mentioned here. Whatever opinion may be held on the vexed question of the co-education of boys and girls, some special arrangements for disciplinary purposes and some opportunities for both girls and boys to come under the direct influence of teachers of their own sex are undoubtedly necessary in Mixed Schools. There are, and must be, many matters affecting health and discipline, in which the natural adviser of girls is a woman and of boys a man. For this reason alone the staff of every Mixed School should include both men and women; and in any large Mixed School the head teacher will do well to delegate a considerable measure of authority to one of the assistants of the other sex and to make him or her primarily responsible for the conduct and general welfare of the boys or girls as the case may be.

5. **Intellectual Character.**—It must be admitted that on the intellectual side the ultimate results of elementary education often prove somewhat disappointing. That many of the pupils rapidly forget most of the information they have acquired need not occasion extreme concern. But if when they leave school they have lost their early curiosity, if they turn aside from mental effort and put to no profitable use those instruments of knowledge—

especially the ability to read and understand English—which they have secured, then the efforts of their teachers have to a large extent been wasted. What then can the teacher do “to develop in them such a taste for good reading and thoughtful study as will enable them to increase their knowledge in after years by their own efforts”?

He must certainly become, if he is not one already, a close and sympathetic student of the nature of his pupils. He must be able to range himself mentally alongside them and ready to modify his teaching to meet their needs. Briefly, his task is to make the most of the mental qualities which already exist in them and are seeking opportunities for exercise, their motives, interests and instincts; their sense of wonder and romance; their natural curiosity, constructiveness, combativeness and so forth. His starting point must be no rigid syllabus or subject, but the children as they really are: he must work always with the grain of their minds, try never to cut across it.

6. Lasting Intellectual Habits not formed under Artificial Conditions.—There is no doubt that the willingness or unwillingness of young people to make use of whatever opportunities for further education are open to them is to a great extent determined by their experience at school. School time is, of course, a preparation for life, but training for the art of living, like training for any other art, must consist in the actual practice of it under expert guidance. The problem for the teacher is how to make that practice genuine; how to prevent school life from being artificial; how, more especially, to make lively and habitual use of the powers of the mind seem a natural, necessary and desirable thing. “Results” do not in themselves prove that he has succeeded: as with discipline, so with “results,” what matters most is the means by which they are obtained. Thus, rewards and punishments, praise and blame and varied appeals to the spirit of competition are employed as incentives to effort in almost all schools, and are found very valuable, especially when their cruder forms can be discarded. But they are incentives of a temporary and external kind: the relationships which they establish

between effort and motive are artificial and do not necessarily survive the period of schooling. They cannot be depended upon to produce intellectual habits, for things done from external motives do not necessarily become habits of lasting effect on life. On the contrary, when the external motive is removed a revulsion to the opposite extreme often takes place.

Laments are often heard that children who worked satisfactorily at school afterwards relapse into intellectual apathy. It cannot be supposed that they have undergone some fundamental change. The fact is that at school they were not themselves ; now they are themselves, but not the selves that they might have been if means had been found to make the approach to intellectual effort harmonise with their natures. Children, like other people, demand a real life, a life, that is, which expresses themselves, and if school does not help them to find one they will do their poor best to find one independently. They will tend to lead in a sense two lives, in one of which they follow their own instincts in a cramped and unprofitable way while in the other they submit more or less patiently to a regimen which seems to them an arbitrary thwarting of their crude efforts at self-expression. The best modern methods of infant teaching have been remarkably successful in preventing this dualism and providing the child with a life which he gladly accepts as a much better one than he could devise for himself. But it is sometimes held that when a child has passed out of the Infants' School or class, concessions to his natural instincts should cease, and that he should be set without further ado to work undeviatingly through a prescribed curriculum. No abrupt change of this kind should take place. All through their period of schooling the children should be led to regard school as their ally in their efforts after self-discovery.

But any break which the child may experience when he passes out of the Infants' School or class is slight in comparison with the break which must occur when he leaves school for good. It will be disastrous if he then takes leave of all his motives for intellectual effort. Hence the teacher

should be constantly striving to bridge the gulf between school conditions and those of the outside world. He can do this only by so planning and adapting his teaching as to bring into play and gradually develop, direct and refine the children's fundamental interests and instincts. The artificial forms of stimulus which he may find it necessary to employ he must endeavour to transform betimes into genuine motives. His own attitude to the things of the mind is of the first importance. What matters most in a child's education is that he should believe in it himself and whether he does or does not believe in it will depend largely upon the example of his teacher.

Remarkable skill has been shown in recent years by enlightened teachers in bringing education and reality into line with each other by establishing connexions between school work and the natural proclivities of the children. This is not, of course, always possible, owing to the size of classes and the differences between individual children, and it is easier with some subjects than with others. It calls inevitably for a great deal of resourcefulness, imagination, sympathy, knowledge and breadth of view on the part of the teacher. But it is well worth all the pains that can be spent upon it. Such subjects as handwork, singing and rhythmic exercises, nature study and elementary science, are naturally congenial to children and should present little difficulty. In others, such as literature, or history, the teacher must take precautions lest he and his scholars should get out of sight of each other: thus, in literature the teacher's starting point should be the reading, however rubbishy, which his scholars are doing for their own amusement out of school. But almost everything that has to be taught can be linked by a skilful teacher with the children's interests, and so given value in their eyes. What cannot be so linked had indeed best be omitted. Every step in the teaching of "knowledge" subjects should be accompanied by practical application or illustration in fields in which the children are at home.

The necessity of arithmetic, history and geography should be constantly demonstrated in this way. Individual

methods which enable the pupil to study on his own account and to proceed at his own pace also make it easier for the teacher to meet him on his own ground and to adjust some of his school work to his personal tastes or hobbies. This is especially important in the latter stages of the Elementary School course. A scholar who completes a Secondary School course may before he leaves school come to appreciate and value much that he at first only studied under duress. But the Elementary School pupil is likely to leave too soon for this change of attitude to have taken place. If, therefore, he has conceived a desire to attempt some particular piece of work it may sometimes be as well for the teacher to humour him, even if what he wants is rather novel from the point of view of school routine. The readiness of the teacher to meet him half-way may profoundly influence his attitude towards further education.

An almost unlimited degree of freedom for children is sometimes advocated nowadays. It has been proposed that they should choose their own subjects, make their own rules and time-tables, work or not as they feel inclined. Nothing of this kind is suggested here, except perhaps in the case of individual pupils who are nearing the end of their school life. There is a due mean between a system which counteracts the natural aspirations of the children and one which in the name of freedom refuses them the aid and guidance they require. Children cannot be treated from the outset as if they were possessed of mature judgment, experience and self knowledge. But they can be treated as rational beings, and the teacher should see to it that the purpose of the work they are required to do does not remain a mystery either to them or to himself. Its ultimate purpose may not be fully within their comprehension, or may be too remote to appeal to them directly. The teacher should then endeavour to invest it with an immediate purpose which should, if possible, take the intrinsic form of putting it to some practical use rather than an extrinsic form such as the gaining of marks. Dramatic performances, entertainments and displays, debates, short lectures by scholars, a school magazine, investigations into

matters of local interest, the provision of various forms of equipment for the school, exhibitions and parents' days may afford opportunities for giving point to school work.

7. Interest and Drudgery.—It is sometimes maintained that to endeavour to make interest the motive for all the work is a mistake. The children, it is said, will expect to find all their work interesting when they leave school and in their inevitable disillusionment will be unable to confront difficulties manfully and to persevere at dull work.

It is not, however, suggested that every detail and stage of the work can be made interesting, but rather that children will readily perform irksome work when they see it as a means to a desired end. Any system which led to the shirking of difficulties would certainly be disastrous, but there is no doubt that it is when the motive of interest is present that the hardest work is done. It will probably be admitted that as a means of forming intellectual habits, drudgery, merely as such, is unprofitable. On the moral side it may produce a certain doggedness of character. But it will certainly cause distaste for intellectual pursuits. It may be argued that children should face drudgery from a sense of duty. This is a hard saying and subjects their incipient sense of duty to an unreasonable strain. Grown people will perform work involving drudgery from a sense of duty, but only when they are satisfied that it serves some useful purpose. More than this should not be required of children. They should be required to face drudgery too, but not until the teacher has done his best to help them to identify themselves with the end for which it must be undertaken.

8. Emotional Character.—Character training, in its emotional aspect, refines the feelings and widens their range by providing worthy appeals to them and worthy outlets for them. No definite distinction can be drawn between intellectual and emotional training. Intellect and emotions act and react upon each other. An intellectual training which duly takes into account the children's own aspirations

will produce, as progress is made and difficulties overcome, that sense of pleasure which accompanies the realisation of a purpose and which inspires to further effort.

But certain subjects, especially music and poetry, drawing, rhythmic exercises and the crafts do directly inspire and express special feelings which are recognised as belonging to the higher side of human nature. In such subjects both creation and appreciation should be encouraged. They are a means of spiritual enlargement, and this fact constitutes their claim to inclusion in any system of education. It is true that those who take a strictly utilitarian view of education sometimes belittle such subjects as music and the arts. But, indispensable though the means of living are, they are, after all, means and not ends, and it is the aim of education to help people not merely to earn their living but to get more out of their lives. The standard of living can be raised not only by the provision of material things but also by fine feeling and the appreciation of beauty. Emotions inevitably play a great part in life, and indifference to the higher emotions tends to degrade life. The violence and intensity of modern sensational appeals tend to overwhelm the higher though quieter pleasures of mind or eye or ear. But the teacher who desires to train the feelings will be able to win response to the finer emotional appeals from many of his pupils and to convince almost all of them that emotional appeals do as a matter of fact differ in quality. It would, of course, be a mistake to impose an arbitrary standard abruptly upon them. In matters of taste sudden conversions often take place, but it is essential, as in other branches of education, to start from what the children already appreciate and understand.

9. **Moral Character.**—The field of moral conduct remains for consideration, though much that has already been said has a bearing upon it. Broadly, the teacher's ideal must be to build up such a sound general tone in the community of which he is the head that to behave in a manner consistent with self-respect and honour seems to the normal child the only possible course. How far he will depend

on formal and direct instruction he must decide for himself. The every day incidents of school life will enable him to impress upon his scholars the importance of mutual courtesy, of cheerful obedience to duty, of consideration and respect for others and of kindness to animals. But he will soon find that the mere inculcation of sound precepts will not suffice. Exercise and practice are required for the developing of those qualities which he desires to foster, and the provision of the necessary scope will involve the diversifying and enlarging of school life in various ways.

One plan which has been adopted in many schools with good results is that of appointing certain responsible scholars as prefects or monitors. The duties of prefects are more circumscribed in a day school than in a boarding school, but even so they can be made extensive enough to be of real value both to the school and to the prefects themselves. The fact that some of their own number take part in its government and that they themselves may look forward to doing so helps to impress upon the rest of the pupils the idea of the school as a corporate body, demanding their loyalty. There are bodies of school prefects who have sufficient sense of responsibility and inspire sufficient respect to exact a high standard of behaviour from the rest of the school even out of school hours and off the school premises. In larger schools, and especially in Central Schools, with a number of scholars remaining till the age of 15, discipline, in the sense of the observance of the necessary school rules, can be largely entrusted to the prefects. And in the junior classes even quite young children can be rendered allies of the teacher in attending to various small details and can so be prepared for the exercise of more important functions later on.

School life affords wide scope for experiments in developing the sense of social responsibility and training in team work. A school is large enough to give its members the conception of collective life in a community; it is small enough to bring it home to them that each one can play an important part for or against its interests. And experiments are safeguarded from the risks which attend them

in the outside world, since the teacher remains in reserve and can intervene as *deus ex machina* whenever the trend of events requires it.

Many teachers have enriched school life by instituting school societies and other activities both within and without the curriculum with the definite object of promoting such social qualities as co-operation and power of organisation ; sense of justice, fairness and responsibility ; reasonableness, unselfishness, chivalry and good temper. School games, as is elsewhere pointed out, are of very great educational value through the demand which they make for the exercise of such qualities. The players should learn to bear themselves well both as winners and losers. In some schools a " House " system has been introduced with the object of substituting the good of the group for that of the individual as a motive for various kinds of effort. Some of these enterprises and experiments may perhaps miss their mark. They require a high degree of insight and wisdom in their application. But to regard them as superfluities is to misapprehend them altogether. They are efforts in a most important direction, that of building up a constructive plan for training children to comport themselves wisely and well as members of society.

10. Direct Moral Training.—Direct moral training can most easily be given when a clear appeal to reason is possible. Temperance, thrift* and gambling are cases in point. If the facts about such subjects are clearly placed before the children they will carry conviction. Cleanliness and order will recommend themselves if insisted on from the outset. But the teaching of morals must often be dogmatic rather than reasoned. Against dishonesty and other faults which undermine the character, children must be definitely and

* At the beginning of 1926, out of 25,784 schools or departments, 20,285 possessed some form of thrift institution. There were National Savings Associations in 12,415 schools and in the remaining 7,870 thrift agencies like the Yorkshire Penny Bank, and the Trustee and Post Office Savings Banks were in operation. In some schools National Savings Associations run side by side with other savings schemes. Of the schools which have no thrift scheme, the majority are Infants' departments.

seriously warned. Such warnings will often, no doubt, be given in connexion with the religious teaching which, when given with knowledge and sincerity, can and ought to play the supreme part in training mind, personality and character. There the appeal is to the conscience, and, in the quickening of the conscience as a guide and motive power, work of infinite value may be done by those teachers who are prepared to undertake it. Merely negative teaching should be used with caution ; it may suggest the very evils against which it is directed ; if too often repeated it may weary the listener, provoke antagonism and so defeat its own ends. High ideals of conduct are largely brought about through example, by a kind of contagion. The children should be familiarised with the story of those in whom the great virtues have been especially conspicuous, care being taken not to point the moral too obtrusively. The story of the lives of such persons as St. Francis of Assisi, Joan of Arc, John Howard, Elizabeth Fry, Florence Nightingale, David Livingstone, General Gordon, and many others, cannot fail to evoke moral response. It is probably unnecessary to-day to animadvert upon that type of story, formerly all too common, which distorts truth by representing virtue as always triumphant and vice as correspondingly humiliated.

Ultimately, it has been said, what every teacher teaches is himself. Whatever methods he may adopt, there is no doubt that his own character will be the most potent influence in determining the ideals of his pupils.

III. EXTERNAL FACTORS IN EDUCATION.

11. Local Authorities and Voluntary Help.—Though the well-being of the school must depend primarily on the teacher, it cannot be secured to the full without the co-operation of others—especially of the Local Education Authority and Managers. The scope of the work which can be done by Care Committees, After-Care Committees, Managers, and other voluntary helpers, must vary widely according to the size and character of the Authority's area ;

but there can be no question of its value if wisely directed. Such helpers form a link between the school and the outside world, and should do all in their power to arouse local interest in education, and to enlist the support of parents. By visits to the school at suitable times they can gain a personal knowledge of teachers and children, and help individual scholars by advice as to future employment or further education; and their sympathy will put fresh heart into teachers who may be temporarily depressed by the difficulties of their task or the isolation of a remote village.

A valuable opportunity of informing public opinion about education is afforded by the "Education Weeks," which have been held in recent years by a number of Authorities. At such times it is usual to throw open the schools and allow the public to see for themselves what is being done. It is only by enlisting the practical interest and co-operation of all classes and sections of the community that the educational system of the country can be developed to the best possible advantage, by avoiding waste, concentrating on essentials, and thus securing not merely efficiency but continuous and progressive improvement.

12. The Influence of the Home.—But by far the most important of the potential allies of the school is, of course, the home. Health and character are largely affected by home conditions and even on the intellectual side of education every teacher knows how much depends on whether home influence is helpful or antagonistic to his work. Teachers who view their work as a whole will therefore avail themselves of every opportunity for bringing about an intimate relationship between school and home. They and all others connected with education should do their best to dispel the harmful error—which the old formal system of examination tended to foster—that the work of the schools is a mystery not to be penetrated except by the initiated. Of all the outside public the parents clearly have the best right to be informed as to what the school is doing for their children. Many head teachers make it known that they will be ready to see any parent at certain hours. "Open

days " for parents' visits are also a useful institution. On these occasions parents are able to discuss with teachers and managers any matters of common interest. Medical inspection has provided another valuable opportunity for consultation with parents. A day on which the school's achievements during the year may be reviewed is yet another means of linking the school with the outside world.

Some teachers send periodical reports to parents on the progress of their children and there is no doubt that this practice is an excellent one, which might with advantage be much more common. Another good plan is to encourage children to take home specimens of their exercises, drawings, or handwork.

Homework and hobbies are also means by which school and home may be brought into closer touch with each other. Through homework something of school is brought into the home; through hobbies, something of home is brought into the school. How far homework by older scholars is practicable must depend on the circumstances of individual schools and individual scholars; of its value, where it is possible, there can be no doubt. It may often be advisable to set for home exercises not precisely the same sort of work as the child has been doing at school, but something which may give scope for more freedom of treatment, and at the same time enlist the sympathy of those at home. Such work as getting information or illustrations about a subject for use in school, or making drawings or collections of objects for a definite purpose, suggests itself as meeting the case. Teachers will be well advised to interest themselves in the home occupations of the children, and to encourage them to bring home-made productions for exhibition at school.

IV. PHYSICAL WELFARE.

13. Health a Primary Consideration.—The bodily requirements of the children have the first claim on the teachers' consideration. Children cannot be properly taught when they are hungry, cold, wet, excessively tired, or otherwise ailing.

It is true that teachers may often find themselves obliged to teach children when it is painfully clear that teaching ought to be postponed to something more elemental—care for their physical needs. This care it may be out of the teacher's power, at any rate at the moment, to bestow, but he should do whatever he can, directly or indirectly, to cause first things to be put first.

Teachers should also remember that their own health claims attention. Want of suitable accommodation in the school building, hurried meals, fatigue due to unnecessary standing, excessive strain upon the voice, are all liable to prove injurious to teachers and their work, and can be largely avoided by proper care.

14. **Premises and Equipment.**—It rests primarily with the Authority and the managers to see that the premises are sanitary, comfortable, suitably furnished and equipped. It rests with the teacher to see that good use is made of what is provided. This will involve attention to a number of small details which may seem individually trifling and all of which cannot be enumerated here, but which, collectively, have a potent bearing not only upon the physical welfare of the children but upon the general morale of the school. The best possible use should be made of the means of ventilation and of the cloakroom accommodation. Cloakrooms and passages should never present the appearance of lumber rooms used for storing discarded or useless pieces of furniture or apparatus which might advantageously be got rid of altogether instead of being allowed to remain indefinitely. Where several of the scholars or members of the staff use cycles for reaching the school, suitable arrangements should be made for housing them: they should certainly not be allowed to get in the way. Lavatory basins, soap and towels should be used but not maltreated. Separate pegs at suitable heights should be allotted to individual children, and a looking-glass should be provided in order that children may see for themselves whether they are clean and tidy. Cloaks and hats should never be left lying on the floor; dirty boots should be scraped and brushed. Suitable arrangements should be made in wet

weather for drying boots and clothes. The teachers supervision should also extend to the condition and use of the offices, more especially in the Infants' Schools, in order that habits of decency and self-respect may become second nature to the children.

15. **The Mid-day Meal.**—The proper feeding of the children is a matter which lies outside the immediate scope of the school, except in one important case—that of the children who are unable to return home to their mid-day meal. Here a twofold question arises, the provision of a suitable meal and the conditions under which it is consumed. Both these matters call for the attention of the Local Authority and the managers, as well as that of the teacher.

The children usually bring their dinner with them, but it is inevitable that it should often be inadequate and unsuitable. Certain Authorities accordingly provide canteens either on the school premises or in some suitable adjacent buildings. In some cases the head teachers themselves manage a canteen and make it entirely self-supporting. In any case, boiling water should be available, and there should be facilities for heating certain foods brought by the children. Sometimes the scheme of instruction in a School Cookery Centre, especially if planned on a whole-day basis and for girls who have already had some practice in cooking, can be so framed as to provide for the preparation of mid-day meals, each group of girls doing the cooking which would be required by a small family. A full class would thus provide collectively a meal for 24 to 30 children. Care should be taken to ensure that a scheme of this kind is not allowed to interfere with the satisfactory progression of the instruction, and that it is so planned as to proceed from one point of difficulty to the next without undue repetition of processes or dishes.

The actual supervision of the meal is not infrequently undertaken by a teacher, with the assistance sometimes of some of the older scholars. Unless there is some supervision social habits will be formed which are subversive of the training which the school aims at giving. If left to shift for themselves many of the children will not even sit down

for their meal and will leave crumbs, crusts and dirty paper indiscriminately scattered around. The tables—or desks—should be properly laid, the children should wash their hands, table cloths or a thin white oil cloth should be provided and there should be plates, cups or mugs, and a few jugs, spoons, knives and forks. When all is ready grace should be said. The meal should not be hurried through and when it is over the necessary clearing away, washing up and cleaning should be done and the equipment put away in a cupboard provided for the purpose. And, until afternoon school begins, provision should be made for the children to entertain themselves in a suitable manner with books and games indoors as well as out of doors.

16. Physical Training and Games.—Among means of promoting the well-being of body and mind, English educators have always assigned a principal place to games and physical exercises. This subject is dealt with in a separate chapter and in other publications of the Board, but it may be pointed out that Local Authorities, managers and others can hardly render better service in the sphere of education than by helping to extend the benefits of games to a far larger number of Elementary School children than have hitherto enjoyed them. In various areas arrangements have been made for the use of open spaces as playing fields by groups of schools, and it is to be hoped that, when circumstances permit, this example will be more widely followed in the future.

Games should be played with keenness and intelligence. The children should study for themselves the official rules governing the more important games, and consider some of the nice points which arise under them. At the same time games should not be allowed to become a fetish and the school "League" team should not monopolise attention.

Every encouragement also should be given to the teaching of swimming, in which life-saving lessons should be included. Apart from its practical utility it helps to produce the self-confidence and resourcefulness which are essential elements in true courage.

V. THE INFLUENCE OF SURROUNDINGS.

17. **The Importance of the Example set by the School.**—The influence of their surroundings on children has been a commonplace of educational theory for centuries, and the school by its silent example should do much to set a standard of living and to awaken and stimulate a love of beauty. The greatest hindrance to the exercise of this influence is the accumulation of dust and rubbish in the schoolroom. Managers by their care of the premises and by their attention to the regular routine of school cleaning, and teachers by their insistence on the orderly and tidy storage of the school material and the free use of the waste-paper basket, can make even the dullest schoolrooms pleasant places to work in.

Children readily learn to take a pride in the appearance of their classrooms, and this feeling can be made the basis of training in habits of self-reliance as well as of neatness and order. It should be the business of the children, not of the teacher, to keep the room neat and tidy, to fetch, distribute and put away books and apparatus, and to attend to any plants or flowers which may be kept. To carry out these duties promptly on their own motion is a valuable part of their education.

But the influence of the school should extend beyond the formation of orderly habits of life. By making the schoolrooms bright and attractive, managers and teachers can do much to develop a sense of beauty and to cultivate good taste in the scholars. While in some cases it may be possible to rely on a general scheme of decoration, more often the school will have to depend in the main on the decorative value of good pictures. The value of pictures in leading to the appreciation of things beautiful in themselves, that is, beautiful in form or colour, or both, has been increasingly recognised in recent years, but there are still too many schools where the walls are covered only with maps, inartistic diagrams and crude illustrations. Even where the attempt has been made to replace these by framed pictures the choice has often been haphazard and

unenlightened. In the absence of any general standard of taste this is probably inevitable. The choice of pictures which will strengthen the sense of colour and composition requires care, and it is most important that advice and guidance should be sought from people competent to give both. The one thing that matters is that the pictures should be good. A lavish display of pictures is neither necessary nor desirable ; a few of real merit if selected and arranged with care and judgment, are in every way more effective. The pictures should be hung well within the range of a child's eyes, and the framing should be such as to enhance the value of the picture and not to weaken it.

It is important that the pictures should be such as appeal to the interest of children and should not alienate interest by being too strange in subject or treatment. Younger children are mainly interested in pictures which tell a story which they can read for themselves, and it is fortunate that there are pictures (such as Millais's " Boyhood of Raleigh "), which meet the young child's preference without any sacrifice of those qualities of design which distinguish the good picture. This principle of selection may be accepted at this stage, but it is reasonable to think that the school should do something through its range of pictures to wean the older children from mere interest in the story, and to lead them to begin to take an interest in the artistic qualities of a picture. Hence, for older children the pictures should be sufficiently impersonal to stimulate the imagination rather than to feed it with information (e.g., Hobbema's " Middelharnis Avenue," and Whistler's " Battersea Bridge ").

It is of advantage if a change of picture can be made from time to time, and it is useful to have movable backs to the frames so that pictures may be easily changed. In some cases arrangements may be made by co-operation between different schools or departments for an interchange of pictures at definite intervals of time. There is much to be said also for the plan, adopted in some schools, of having a screen in the school hall for the display of a frequent succession of good pictures.

18. **Pictures as Means of Instruction.**—The view expressed above that school pictures should be chosen because of their qualities of design and technique does not preclude their use for purposes of direct instruction. The value of pictures in supplementing the teaching in almost every subject is well recognised; indeed, in the past this consideration was often the chief motive for their selection, and little attention was paid to their merit as works of art. But many more pictures are needed as aids to class teaching than can be hung on the walls; and many of them, partaking of the nature of diagrams, charts and photographic or scientific illustrations, are necessarily deficient in decorative value and are not suitable for permanent exhibition. It is accordingly suggested that pictures and illustrations of this kind should be classified and kept in portfolios and only exhibited when they are required for the purpose of a lesson.

Some schools for older children include classrooms which are set apart for continuous use in the teaching of special subjects, e.g., geography, history, practical work, science, and art. These special rooms then partake more of the character of workshops, and the opportunities for decoration are strictly limited by the use made of the room. The right treatment of the walls would seem to be to copy the good workshop, and to aim as far as possible at simplicity or even severity of treatment. The sense of order and neatness will be best developed if more use is made of the portfolio as a storehouse of material not in immediate use, and if the walls are left for such charts and diagrams as are in continuous use.

VI. THE HEAD TEACHER.

19. **Teaching and Supervision.**—It should be a first principle with every head teacher himself to do a regular amount of actual teaching. In small schools he has no choice in the matter. He has perforce to do the main part, or even the whole, of the teaching himself; sometimes the superiority of a small school is due to this very fact. It is customary to staff large schools with a qualified

assistant teacher for every class. In such cases, apart from his necessary functions of supervising and examining, the head teacher who is anxious to make his influence felt to the best advantage will arrange a programme of work to be taken by himself, which must, of course, vary greatly according to his special tastes and circumstances. It should have the invariable qualities of being actual teaching and not mere supervision of others, of being regular, and of being so planned that every child in going through the school comes at some time under the influence of the one teacher who should have the most to teach him. In schools of intermediate size many different forms of organisation may be employed, but none need interfere with the right and duty of the head teacher as teacher. In such schools the head teacher will often take the highest division or class.

The function of the head teacher as teacher is inseparable from his special duty of guiding, inspiring, and supervising his staff. That overworked term "co-ordination" would not be inapt in this fresh connexion, for it is sometimes found in the larger schools that the head teacher, who has been perhaps a very successful class teacher, is not able to produce that unity of effort among his staff upon which the success of the whole depends. The classes in such a school have a tendency to run as independent units, self-contained and sometimes ignorant of what is going on in the class next door. In some schools the class teachers pass up for some years with substantially the same set of children. While there is something to be said for and against this practice, it is in any case undesirable to keep a teacher for many years confined within the narrow limits of "one year's work," and most important that each teacher should be acquainted not only with the scheme of work for the whole school, but with the aims and ideals towards which the head teacher is working.

To make the most of his staff and keep them in touch with the work of the school as a whole is so obvious and important an object for the head teacher that he should try every practicable device to secure it. Periodical conferences are one necessary part of the school routine

which is not always put to its full use. They should be held regularly to discuss changes in the scheme of work, to put teachers in possession of what is being done in other classes, to compare the results of the periodical examinations, or to discuss the value of a new method. These are a few of the constantly recurring purposes for which the staff of one department should be called together ; the need of conference between the head teachers of different departments, for such purposes as the promotion of children or the harmonious development of the work, is in some respects even more urgent.

20. The Training of Young Teachers.—In two directions the head teacher's task of guiding his staff assumes special importance. In the first place, it rests with him to plan and supervise the practical training of any pupil teachers and student teachers who may be employed. The amount of teaching which he assigns to them, the subjects which they take, the size of their classes, will naturally vary according to the stage which their training has reached and to their individual capacity. But in all cases he should arrange for them regular practice in actual teaching ; their work should not be limited, as has sometimes been the case, to looking on while others teach, or to performing such duties as the distribution of apparatus or the correction of exercises. While the class teacher will naturally assist in supervision of their work, the head teacher should take every opportunity of watching it personally and giving them such advice and criticism as will help them to improve their aims and methods. After some months' experience, he should be able to form a correct estimate of their capacity and suitability for the profession, and in any exceptional case, where his deliberate judgment is distinctly unfavourable, he should not shrink from expressing it both to the intending teacher and to the Local Authority.

In the second place, the head teacher will frequently have to assist young teachers fresh from the Training Colleges to derive full advantage from their "probationary year." Such teachers have rarely had the experience in managing large classes which fell to pupil teachers in the

past ; and they cannot reasonably be expected at the outset to exhibit the same ease in maintaining the externals of discipline. But in most cases this difficulty is merely temporary, and is overcome with the help of sympathetic advice from the head teacher as to the technique of class management. He should, however, beware of carrying direction of their work so far as to check initiative or discourage them from attempting to carry out any fresh methods which they may have learnt in their course at the Training College. Lack of practical skill in the theorist is no proof of the worthlessness of his theories, and the wise head teacher will get from his young assistants all the new ideas he can for trial, and, if necessary, for amendment in the light of further experience. He should make a point of ascertaining what special qualifications and interests they possess and should take these into account, as far as possible, in arranging their work.

VII. ORGANISATION.

21. Schemes of Work.—However competent school staffs may be, some system of planning and preparing the work must be adopted by head teachers, and enforced both upon themselves and upon their assistants. On him rests the responsibility of drawing up a general scheme of work for the school. Naturally this will be done in consultation with the staff, and with the advice of those members who are specially interested and experienced in the different branches, e.g., the teacher in charge of the younger children for the syllabus of the junior classes, one of his women assistants for the needlework and domestic lessons, and so on. The details of this general scheme may be worked out by the assistants, who should be allowed a reasonable latitude. They should be encouraged to treat their work as a growing thing, and not be bound down, as they sometimes are, to cover an exact number of pages in a book or give an exact number of lessons on subjects specified for months or even for a whole year beforehand. They should at the same time be expected to keep some evidence of preparation of their lessons and some record of their

teaching. These need not involve great labour, but should be short, business-like, and practically useful.

22. Classification and Promotion.—The rigid system of annual promotion which was the natural accompaniment of the old annual examination, is now seldom defended, and although there are still unfortunately many schools where questions of accommodation and staffing interfere with a classification on an educational basis, in recent years it has been more and more clearly recognised that children should be allowed to progress through the school at varying rates suited to their individual capacity. To give the child free scope, whether in his own school or elsewhere, is the teacher's duty, though it doubtless involves more complicated class arrangements and more individual attention than were necessary under the older system. These arrangements will naturally vary from school to school, mainly according to its size. In the smaller schools more than one grade or standard is of necessity under one class teacher, and here the problem of promotion is in many ways easy. The bright child can with little difficulty pass from the lower to the higher section of each class.

In large schools the problem is more difficult, and teachers are attacking it in various directions. It may probably be assumed that most new experiments in classification and promotion will for some time at least fit themselves into the general framework of an "educational year." This year is usually divided into terms of four or six months, at the end of which the progress made by the class is tested. This examination offers an obvious opportunity for promoting deserving scholars. In the largest schools the promoted scholars may, and often do, form for a time an intermediate class, but more frequently they are introduced into a class which has already covered a large part of the year's work. In this case, whilst they can share most of the work of the class, arrangements may be made for teaching them for a time as a separate section in certain subjects, e.g., in arithmetic. This has been found practicable in many schools, and is the obvious way of doing justice to the varying abilities and pace of the scholars.

The scheme of work which best fits a system of more frequent promotion will differ widely from the old type of scheme which presented one set "quantum" as the exclusive possession of each "standard" to be completed by all its members in the year—no more and no less. The syllabus of one class will overlap that of other classes, and will contain both more revision and more anticipation. Thus in arithmetic, the teaching, say, of fractions or of measurement will not be regarded as belonging only to "Standard V or VI," but in a simpler form will be begun far earlier in the school course, and will be developed later in greater depth and wider application. Fortunately this principle of a scheme of work naturally unfolding itself applies most fully to the two leading subjects in the curriculum, English and arithmetic, but it will have a bearing on all parts of the work.

23. Backward Children.—A difficult problem of school organisation is that of the proper treatment of children, who are "merely dull and backward," and who are not actually "imbecile" or "defective" as defined in Section 55 of the Education Act, 1921. Recent investigations carried out in different parts of the country into the causes and the distribution of backwardness among school children have shown how urgent is the need for making some special provision for these children. But first of all it is essential that teachers and others directly concerned with the work of the Elementary School should have a clear conception of what exactly is involved in the term "backward" when used in this technical sense.

Dr. Cyril Burt has defined backwardness as follows :—

"Not all school children who have fallen behind the average standard of school work normally reached at their age need special provision. The term 'backward' may be limited to those who, without being mentally deficient, nevertheless do not derive full benefit from the ordinary curriculum and teaching methods of the ordinary Elementary School, and who cannot approach the level of attainment which the ordinary school child is expected to acquire before he leaves. Children

who are but one class behindhand suffer but little. I should therefore regard as specifically 'backward' all those who in the middle of their school career, would be unable to do the work even of the class below that which is considered normal for their age. Thus, a child of 10 with attainments equivalent only to Standards I or II would be regarded as backward. Those whose attainments are equivalent to Standard III, though somewhat retarded, create no special difficulties. Those whose attainments are equivalent to Standard O (Grade iii) or below, will probably be transferred to a Special M.D. School."*

As a result of the surveys he has carried out, Dr. Burt estimates that at least 10 per cent. of the school population of our industrial towns are backward in this definite degree.

This estimate serves to show the extent of the problem and the range within which on Dr. Burt's scale varying degrees of backwardness are to be found, and will help teachers to realise that between the great mass of school children of normal, though varying, mental abilities on the one hand and the mentally defective children on the other, there are many dull and backward children whose mental development though slow is not too slow to prevent them from deriving proper benefit from their attendance at the ordinary Elementary School, if they receive instruction of an appropriate kind. In devising plans to provide the special treatment required by these children, teachers will find it useful to make a distinction between those of them who are "dull congenitally," i.e., those whose retardation is attributable to heredity or to inborn factors and those who are "backward" in a more restricted sense, i.e., those whose retardation, mental or educational, can be attributed to some extraneous or removable cause, such as ill-health, irregular attendance, or unsuitable teaching.

The treatment of the problem will naturally vary according to the circumstances of each school. Teachers

* London County Council *Development Memorandum No. 1* (based on Dr. Burt's *Report on Provision for Backward Children*, issued in April, 1918).

were done, many a "merely dull and backward" child would develop gifts of real utility and pleasure to himself and of great service to the community.

For detailed suggestions as to the methods of teaching applicable to the needs of dull and backward children, teachers cannot do better than consult Dr. Burt's Report to the London County Council, Sections 10 and 11 of which appear as Appendix A. at the end of this volume.

VIII. THE CURRICULUM.

24. Choice of Subjects.—It is not possible to lay down any rule as to the exact number of the subjects which should be taken in an individual school. The choice, indeed, cannot be in practice absolutely free. It is in part determined by public opinion as expressing the needs of the community in which the scholars live. Every normal child must acquire the power of speaking his own language, of reading and writing it, and also some knowledge of arithmetic and measurement. Similarly, the importance of hygiene and physical training on the one hand and of moral training, formal or informal, on the other, is so great that no one would propose their omission from the curriculum of an Elementary School. But in selecting other subjects the decision is not always so easy; and it may be useful to indicate some principles by which it should be guided.

The curriculum must vary to some extent with the qualifications of the teaching staff. This principle is specially applicable to small schools, taught by only one or two teachers. In such schools there may be no teacher on the staff capable of dealing adequately with some particular subject or subjects. When this is the case, it will be wise to omit the subject altogether rather than to teach it badly or half-heartedly. A teacher, for example, who has little taste for, or knowledge of, music, will produce no results of any value, and may easily do actual harm to his scholars' voices if he is forced to attempt instruction in it. Drawing, handicraft, and nature study are other subjects in which some genuine aptitude and interest on the part of

the teacher are essential, if they are to be included in the curriculum. The necessary interest in any of these subjects may indeed be latent, and may be brought to light by opportunity for study, but it cannot be made to order. The teacher who has honestly assured himself that he does not possess it had better put the subject aside, and compensate his scholars for its loss by widening and deepening the rest of his work.

In a large school, staffed by several teachers, it is seldom necessary to omit a subject altogether. The problem in such schools is as a rule to make full use of the diversity of tastes and abilities which is almost sure to exist among the staff. One teacher will have musical gifts, another a special interest in history or geography, another scientific aptitude. The head teacher will do well to let any such ability have its scope both in planning the syllabus of the subject and in the actual teaching of it. He can allow a teacher to take a subject or subjects in more than one class. Specialisation of this kind has been attempted too seldom in Elementary Schools, and in consequence much talent in teaching has run to waste. Its adoption, especially in senior classes, would often be greatly to the advantage of both teacher and taught; and if it is judiciously used, it is quite compatible with the exercise of the strong influence which the class teacher should have on the characters of his scholars.

25. Requirements of the Scholars.—Variations in the curriculum will often correspond to the special needs and circumstances of the scholars. They will show themselves rather by differences of emphasis on some subject or parts of a subject than by the omission of a subject altogether. In a rural school, under a competent teacher, for example, nature study may properly occupy an amount of time which would, as a rule, be excessive in a school situated in the heart of a town. The course of arithmetic for a school where the majority of scholars take up industrial pursuits will differ from that of a school where the majority of scholars pass to commercial life. Further illustrations of the application of this principle will be found in later

chapters ; but something should be said here on the most obvious and general reason for variation in curriculum, viz., difference of the scholars in sex. Young boys and girls can be taught together, but as the years pass on the gulf between the boys' and girls' courses rapidly widens. It is not merely that older girls are instructed in various subjects, e.g., needlework, domestic subjects, and infant care, which are not taken by boys, and that boys receive various kinds of manual training which are usually thought to be inadvisable for girls. Difference of sex must also affect to some extent the treatment of many ordinary subjects in the curriculum. This is obvious in the case of lessons on hygiene and physical training ; but the experience of teachers seems to show that in subjects such as arithmetic and geography, a course suitable for boys often requires considerable modification if it is to serve the needs and interests of girls. This matter is clearly of special importance in Mixed Schools. Where private study methods have been adopted it is easy to introduce appropriate differences in the courses of work arranged for the older boys and girls. Different types of exercise in arithmetic may be set : the English course, while containing much in common, may include one or two books specially suitable for private reading by girls and boys respectively. Occasionally, in such a subject as hygiene, arrangements should be made to give special lessons to girls, while the boys are occupied in gardening or handicraft.

26. The Small Rural School.—There are very many schools up and down the country in which the head teacher teaches 25 or 30 children ranging in age from 8 to 14 years, and an assistant teaches the 15 or 20 younger children. These schools are found in districts where farming is the principal industry and where the children are familiar with the outdoor life of the farm, its livestock and the wild life of the neighbourhood. One of the first aims of the teacher will be to teach the children how to express their ideas clearly about all these things in speech and in writing, so that what they learn in school may lead them to think with a fresh interest about what they see out of school. But the curriculum should not be narrowly confined to rural affairs,

although the teacher will not neglect to draw freely upon such material ready to hand as can be used to vitalise almost every subject of instruction.* Teachers will rightly lay special emphasis upon those subjects which they are best qualified to teach, but it is specially desirable that they should be interested in plant and animal life and have some training in drawing and simple handwork.

The children up to the age of seven will be taught by the assistant teacher, and many County Authorities have arranged to give their assistant teachers training in modern Infants' School methods. Where this has been done, the benefit has been very marked: the younger children have learnt how to occupy their time usefully and happily when left to themselves. To foster this habit of mind in children, to train them to talk clearly, to teach them to read, write and reckon, are, next to care for the children's physical welfare, the most important matters at this stage.

The older children may be organised in two main groups, the ages ranging approximately from 8 to 10 in the one, and from 11 to 14 in the other, the actual classification being based on capacity and attainment in English. The problem is to provide systematic and progressive instruction within these two groups. It has been successfully solved in the matter of arithmetic by the use of graded series of text-books. The wide choice of books now available makes it possible for instruction in English to be equally progressive. Since these books are intended for all types of schools, judicious selection from their contents may be advisable in any particular school, and certainly additional exercises should be devised by the teacher. In any case actual instruction will still be necessary.

Some teachers find time for oral lessons to three separate groups in either geography or history, or in both; others prefer to teach only two groups and to form, perhaps in

* Teachers in rural schools will find the following publications issued by the Board of help to them in their work:—“The Practical Management of small Livestock in connexion with the teaching of Rural Science in Elementary Schools”; “Rural Education”; and “Physical Exercises for Rural Schools.” (These three Educational Pamphlets are obtainable from H.M. Stationery Office.)

addition, a small top section of children specially selected as being really capable of private study. However this may be, the exercises set upon the lessons should be graded in difficulty so that the more advanced children of a group may have their powers fully exercised. It is essential to the success of independent study of this kind that it should be definitely directed and carefully supervised by the teacher, who should reserve some time for discussion of the subject matter with the children. A supply of books fresh to the children is necessary in order to keep up their interest, and if they have received some previous training in obtaining information from books, they will certainly make good use of them.

In schools under a mistress, the question how best to occupy the boys' time when she herself is teaching the girls needlework, calls for her serious consideration. Drawing or handwork may fill part of it, but there should be some drawing lessons in which the boys may share, when the teacher's undivided attention may be given to the subject.

Where facilities exist, some teachers may wish to teach gardening. This, however, will not be advisable, unless the teacher is specially qualified, though some amount of plant cultivation may well form part of a scheme of nature study.

In the still smaller schools in which one teacher is in sole charge of some 20 children, there is even greater need for resourcefulness on her part. It is practically inevitable that a simpler curriculum should be adopted in view of the fact that the requirements of the younger children make great inroads on her time.

IX. STAGES OF SCHOOL LIFE.

27. **The Four Stages.**—Whatever the organisation and curriculum may be the course of a child through an Elementary School may be usefully considered as falling into four main stages. The first will be the preliminary or "Nursery" stage, through which those children pass who begin their school life between the ages of 3 and 5 years, before attendance is compulsory. The second

or "Infants'" stage will extend from the age of 5, at which attendance at school becomes compulsory, to about 8. These three years should be treated as a single stage, and though the organisation of the school may require children to pass from one Department to another before their eighth year, and so come under another head teacher, the method of training should be as continuous as possible. The third or "Junior" stage is a period of transition during which the spontaneous activities characteristic of the Infants' stage are merged gradually into the more sustained activities and systematic work appropriate to later childhood. The fourth or "Senior" stage will include those scholars who will for the most part complete their full-time education in the Elementary School, having passed the usual age for transference to a Secondary or Central School, and who should be enabled by their previous training to make the fullest use of all the resources which the school provides. It is the stage for systematic but directed study; it should also be characterised by the practical bent given to the instruction by the courses in handicraft, housecraft, or gardening.

These four stages are dealt with in detail in the sections which follow. It is important, however, to remember that no rigid lines of demarcation exist between the various stages. In particular, the difference between the Infants' and the Junior Stage is not so clearly defined either as the distinction made necessary between the Nursery and the Infants' stage by the fixing of the age for compulsory school attendance at 5 years, or as the distinction which the needs of adolescence require should be made between the Junior and the Senior Stage. Accordingly, in some of the chapters of this book, which treat of the various subjects of instruction, it will be found that the Infants' and Junior Stages are not always dealt with separately.

(i) THE NURSERY STAGE.

28. **The Treatment of Children under the Age of Compulsory Attendance.**—It is customary in certain districts to undertake arrangements for the care and nurture of

relied on. A good deal of sound training in personal cleanliness can be given by teaching the children to wash themselves, to clean their teeth or to brush their hair. Materials for these operations should be kept separate for each individual child. Another very necessary part of the teacher's work is the supervision of the children's use of the offices, which in a well-arranged nursery class will be near at hand, suitably fitted for use and easy of observation by the staff.

Valuable educational opportunities are also afforded by the meal times. One of the great advantages of the Nursery School over other forms of early training is the fact that children can be fed on suitable food at regular times and under cleanly and decent conditions. But even when only the mid-morning lunch is taken at school the children may busy themselves in preparing and laying the table, in clearing away after the meal and even in washing up. They can also be taught to "behave mannerly at table," to eat without spilling and to be attentive to others as well as to themselves and may thus become accustomed to the ritual of good table manners.

At this period too, the closest possible association with the School Medical Service becomes imperative. The congregating of large numbers of small children at the age most susceptible to the onslaught of epidemic diseases demands the attention and supervision not only of the School Medical Officer and the School Nurses, but of the teachers, who should be skilled to detect the early symptoms of such diseases and ready to take prompt preventive measures against the spread of infection. They will be able, too, to detect and to take measures against common preventable bad habits, such as mouth-breathing, squint, etc., which, unless dealt with at this early age, tend to establish themselves to the detriment of children's health in later years.

29. The Formation of Mental and Social Habits.—It would, however, be a mistake to assume that healthy physical development is the sole concern of a Nursery School, and that the growth of the mind can be left to take care of itself.

The school should provide specific training on this as well as on the physical side. It has much to do in the way of preparing the children to begin the work of the Elementary School with well-formed habits, with minds alert and eager to learn and unspoiled by premature attempts to teach what is unsuitable. Formal work in reading, writing and arithmetic should have no place at all in the Nursery School. The children should be taught to use their voices naturally, without harshness, and to articulate clearly and correctly. They should be encouraged to ask questions, to understand and act upon what is said to them, to talk freely on their own little concerns, to say simple rhymes and poems, and to sing together. Music and singing will help in the training of speech, and through listening to stories children will learn something of the pronunciation and meaning of words. The skilful teacher will know how to entice even the shyest child into talking. The picture-books and toys, with which a nursery school should be well stocked, the garden and the pets that may be kept, will furnish material enough for talking. One of the objects of training in speech is to give the child, often brought up in narrow surroundings, ideas as well as words—things, in short, to talk about.

A beginning may be made in directing that motor and sensory experience of the child which is vital to its harmonious development. Certain forms of handwork and simple physical exercises—walking, hopping, skipping, marching, running, and arm exercise—are valuable. It is important that the handwork and any other occupations should have a purpose. The interest of young children is in occupations which have meaning, which do something, and which are followed by results. They like to handle things, and push them about, to make, create, and use; to build towers and destroy them; to collect and have the sense of ownership; to come into contact with and control other forms of existence than their own. All these early natural aspirations should be cultivated, developed and directed in the Nursery School.

Another principal aim will be what is sometimes called "sense-training." The purpose of such training is not

primarily to cultivate the ability to make minute discriminations between different sounds, textures, weights, or even colours, an ability which may be speedily lost if it is not constantly utilised. It is rather, as regards sight, to teach the child to notice broad rather than fine differences in colour, form and size ; as regards hearing, to listen with attention, to respond to quiet questions and commands, to distinguish different sounds, and to develop a taste for pleasant sounds instead of noise ; in touch, to enable the child to interpret shape, size and texture, through his fingers, and to use his hands and fingers for manipulation, such as the careful carrying of utensils and the gentle treatment of flowers. In the course of these activities the children will add indefinitely to their stock of ideas and of words with which to express them. Closely associated with this aspect of education is the training in balance and equilibrium and in easy and graceful movements in walking ; while a sense of rhythm may be fostered through music and dancing. Bad habits in sitting and in moving, ungainly waddling and cramped postures, should be patiently corrected.

Much of the training above suggested will, no doubt, have to be accomplished with individuals taken alone or in small numbers together. But the Nursery School should afford scope also for social training. Children can be enlisted in the service of keeping the room tidy, and be taught to put away their playthings in the proper place. If it is rightly conducted, the whole trend of the Nursery School will be to accustom the children to attend to themselves, to fasten and unfasten clothes and boots without haste or carelessness, to keep themselves as well as their surroundings, tidy and neat, and to take a pride in helping themselves and one another.

Again, even young children can learn to share in games, to play together with common toys, sometimes the older with the younger, and sometimes the older by themselves. The importance of arousing a spirit of co-operation and of mutual help need not be here elaborated. This spirit is not inconsistent with the cultivation of a sense of ownership

and of pride of possession ; if each child not only has access to the common cupboard or shelves of playthings, but has a few of his own to use or to lend, or is given a plant to tend or duties which he alone is to perform, his personal interest in the school will be increased.

It will probably be found advisable to let occasions of collective work, in stories, games, or music, succeed periods when children are left to play as their own choice dictates. Nothing pleases the average child better, after he has played alone with toys and his interest is exhausted, than to join his fellows in listening to a story, in singing or in a game. There is no need for a "time-table" ; the finish of a period of collective work should be determined when the children have obviously had enough. Specified times must of necessity be set for the beginning and end of the session, for meals and for rest ; but nothing more than these need be settled beforehand.

30. Formal Classification not Necessary.—Definite and clearly conceived as the training in the Nursery School should be, it does not imply any formal classification. Strict adherence to an age basis in distributing children in classes should be avoided, for, as has already been said, one of the chief elements in the training of the children is the cultivation of the spirit of common play and mutual help, such as is found in every well-conducted household, and not least in families which do not contain nurseries.

It is a good, rather than a bad, thing that the group of children under one teacher or assistant should consist of children of different ages. The child of two or three will not, of course, be able to join in all that children of four or five can do, but he will watch with interest and delight. Nor will he always follow to the end the story to which older ones will listen with eagerness, but he will feel free to wander off and play on his own account. Older children, too, even if they have games and pursuits of their own, do not lose the power of enjoying the simpler pursuits of their younger brothers and sisters. They will often become interested in the play of the younger children and will be delighted to help and amuse them.

(ii) THE INFANTS' STAGE.

31. **Range of the Infants' Stage.**—Where most or all of the children have been previously in attendance at school from the age of three or four, there should be no break either in the methods or in the general character of the training. But, as a rule, a number of children will begin to attend at the age of five, and will have to grow accustomed to their strange surroundings before they can be fitted into the school system. It may be assumed, however, that their home life during these earlier years has to some extent provided them with the training which school life has provided for the younger entrants and the difficulty should prove only temporary.

At the same time, any idea that these late comers ought to be pushed forward in order to recover lost ground is very much to be deprecated. They should not be deprived of the pleasurable activities which are natural to them in the interests of a supposed need for progress in the "three R's." It is true that, in the mind of the teacher at any rate, the individual subjects now begin to emerge and take shape as elements of a simple curriculum; it is also true that children of this age often begin to show an interest in the rudiments of number or reading and so forth and wish to work at them. So long as knowledge of these subjects is not forced but arises naturally from the children's interests or occupations, no objection need be raised. It may, moreover, be pointed out in support of the English practice of beginning definite instruction in number and reading at an earlier age than is customary on the Continent, that the methods and materials adopted for the purpose have taken on an attractive form of recent years, the formalism and rigidity of the teaching have disappeared, and the children master the first difficult steps in a much more natural way than formerly. It is an open question whether this early practice in the rudiments leads to better and quicker results eventually than when the start is delayed, but it is clear that the scholars themselves do not, in the best schools, find it tedious, dull or useless.

It is a sound practice to endeavour to reach the early conceptions of number, size, weight, form, etc., from the problems that arise in the children's games, occupations and manual activities of all kinds ; similarly it is desirable to base the early teaching of reading on their interest in talk, in stories, and in the life around them.

Alternative or supplementary methods of approach to these subjects through the employment of special apparatus in the form of puzzles or competitions are becoming increasingly common. The advantages claimed for these and other methods of teaching through forms of specially designed apparatus, based on the realities of concrete material, if not of practical experience, are that through a series of graduated exercises it is possible to lead children to a sounder understanding of the elements of number and to secure quicker and further progress than would otherwise be possible. Similarly, in reading, much ingenuity has been exercised in framing schemes of teaching and learning based on graduated exercises in word recognition according to sound, sight or sense. Any one of these schemes when carefully thought out and skilfully used, may be of value. There is a point, however, in the development of each child when continued reliance on these aids to learning becomes a hindrance rather than a help. The good teacher will realise when this stage has been reached and will not sacrifice progress to the fetish of a method.

32. Curriculum and Method.—Speech training remains throughout the whole of this stage a subject of vital importance. In the earliest years it is largely a matter of securing clear articulation, and freedom and continuity in expression. The training will not be successful in an atmosphere of repression or when the native interests of the children are starved. Speech begins in childish prattle and develops through story-telling and story-reading, conversation with the teacher and with the class, narration, description and dialogue, to the ability at the end of this stage to speak fearlessly, freely and continuously, with some sense of ordered sequence and with some approximation to standard speech. **But this training should be, throughout, a natural**

process, leading to a simple and natural end. The child should speak because he has something of interest to say, and even when he comes in due course to express himself in writing as well as in speech, there should be nothing forced, unnatural or formal in the exercise.

Children's love of stories persists through the whole of this stage, but as they grow older the character of the stories told and read will change materially. No teacher of younger children can afford to neglect the practice of this art of story-telling or to relegate the story-telling lesson to one poor period a week as is sometimes done under the impression that the matter is of minor importance. The nursery rhymes and tales of animals and giants will be gradually supplemented and replaced by some of the great legends in the world's literature and stories from history. A beginning can be made with tales of adventure and discovery which also form a most attractive introduction to geography. There is a wealth of material available in story-form, in poetry, and also in songs, acquaintance with which should make it unnecessary for the teacher to resort to the inferior matter which is sometimes considered more suitable for little children because written to order for them and "written down" to them.

The "three R's" have always been regarded in English schools as the keys to further progress and as requiring the chief share of time and attention. But their over-emphasis at the expense of other natural desires and interests which children continue to show throughout the Infants' stage will defeat its own ends. Thus, premature concentration on reading suggests that reading is the only gateway to knowledge and tends to divert attention from the value of direct contact with things as a means of learning. Various forms of constructive handwork, painting and drawing, music and dancing, and the study of nature, are also means of awakening and exercising the intelligence; in fact, it is often possible by such means as these to rouse interest and intelligence which would otherwise remain dormant. The information which is gained in these pursuits, the skill acquired in them and the material which is employed in

their practice and illustration, can be put to good use in the study of reading, writing and number, without over-stressing the connexion and without wearying the children by insistence on an unnatural correlation. But the "three R's" are worth pursuing for their own sakes on account of their inherent interest to most young children. What the substance and the methods of the teaching of these subjects may be, is indicated in later chapters of these Suggestions. Much will depend on the locality of the school and something on the teacher's tastes and capacity. But whatever form the treatment may take, it is the teacher's task to see that the children make progress right through the Infants' stage.

The characteristic note of recent educational doctrine or practice has been the insistence on the importance of the individual as distinct from the class. What are known as "individual methods" are invaluable with older children, but successful attempts have been also made to extend these methods to young children. This is a far harder undertaking which calls for very special gifts in the teacher who attempts it, and three cautions are necessary. First, it is not enough for the teacher to stand aside and leave the children to their own resources. Even young children can do a great deal for themselves in the way of learning to read, in simple manipulations with number, and in writing about things in which they are interested. But all progress depends upon the acquisition of new ideas at the right moment, and no better way of imparting new ideas with economy of time and effort has been discovered than the oral lesson to a group of children who are ready for it. Second, not all subjects can be treated by "individual methods," and no subject all the time. And third, "individual work" may easily result in children standing still unless the teacher adopts some systematic method for keeping in touch with every child in her class by keeping a record of his progress, so that she may know exactly what each child is doing and when he last made a step forward in his work. Without such a record it is often found that there is little or no advance as the years go on in a scholar's

knowledge, in his mastery of technique, and in the scope of his experiments or his power of understanding and appreciation.

For purposes of convenience and for the sake of clearness, it is customary as in the preceding paragraphs to describe a child's life at school in terms of subjects of the curriculum. But this arbitrary classification, which exists in the teacher's mind, does not necessarily, in the Infants' stage at any rate, reflect the attitude of the child himself towards his school life. This, to him, is something more than the mere aggregation of subjects and lessons. One subject overlaps another, one lesson illustrates another and all that happens is associated with the corporate life of the school community which is, or should be, to him a pleasant, attractive and continuous experience. Preoccupation on the part of the teacher with the idea of "subjects" and "methods" tends to obscure the value for social training which the community of school life holds for a child. Whatever methods of teaching are adopted, care must be taken not to rob the child of that experience of action in common, which is one way of developing in him the social virtues.

(iii) THE JUNIOR STAGE.

33. Method and Content of the Teaching.—Although there should be no break in the continuity of the child's experience, subtle changes are taking place. It is becoming obvious that his interests, capacities, desires and outlook on life have developed. He is now ready for *work* as an activity, not necessarily pleasurable at the moment, which serves a definite purpose. He is, therefore, willing, if properly approached, to acquire mechanical facility by some amount of drudgery. He is sustained alike by the end in view and by his growing sense of power. He has realised to some extent the limitations of his environment and no longer seeks to find new experience in fantasy, but in *fact*. He wants knowledge. He begins to take an interest in geography (the world and the people who inhabit it) and history (the life of action).

Hence, while it is important that the children's minds should not be prematurely burdened with knowledge which can have no real significance for them, teachers should now attach more and more value to the exactness and adequacy of their knowledge. They should beware of concentrating so exclusively upon "the development of intelligence" that accurate knowledge comes to be regarded as of minor importance. They need not fear to require the children to memorise certain straightforward particulars, the utility of which is self-evident to them. Memorising, except of verse, may be out of fashion, but it is obvious that certain pieces of information which are in constant demand may advantageously be committed to memory at a fairly early stage. The learning of certain arithmetical tables is a clear necessity. To be able to name and locate the counties and principal towns of England is extremely useful. The dates of the English Sovereigns and of certain important events in history might well be memorised, perhaps with the assistance of time-charts, so soon as the children can realise how much they will thereby be helped to keep their ideas of history clear.

34. Standard of Attainment at the End of the Junior Stage.—By the time that the pupils reach the end of the Junior stage their attitude towards the fundamental subjects will have undergone a change. They should now regard reading and writing, and number also to some extent, not so much as subjects in which they need formal lessons, but rather as instruments which they are able to put to practical use for the acquiring and expressing of ideas. Continuous attention should be paid to improving their command of English, through practice in its use, especially in oral statement and discussion.

At about the age of eleven the scholars should be able to express themselves with fair ease and correctness on matters which fall within their experience or which they have read about in their books. They should have learnt accurately all the simple processes in arithmetic and made at least the first steps in mensuration. In handwork and drawing they should now be showing more technical skill and be aiming

at more difficult subjects and a closer finish. The outlines of history and geography will be forming in their minds, though no attempt should have been made to teach them details, or generalisations, which they cannot properly assimilate.

Towards the end of the Junior stage it is probable that some or all of the children will be taking an external examination designed to test their fitness for transference to Secondary or Central Schools. Every teacher will naturally desire that as many as possible of his pupils should share in the educational advantages of such schools, but it is important that the balance of the curriculum should not be interfered with by examination requirements. There should be no undue concentration on subjects included in the scope of the examination to the detriment of such subjects as music, drawing and nature study, of oral work in English, or of practical work. At this early age the selection of children for special educational advantages should obviously depend on their natural capacity as evidenced by the whole school career rather than on the results of any premature specialisation.

The usual precautions with regard to health are still necessary and to these should be added a precaution against overstrain. Some children grow rapidly at this period, and the tax on their physical energies causes them to appear dull and stupid; others show precocity—they learn quickly and easily, and the too active brain at times refuses to rest at night. Relaxation in the fresh air and definite times set apart for reflection or “browsing” are safeguards against overstrain.

(iv) THE SENIOR STAGE.

35. Method and Content of the Teaching.—It is this stage which at the present time is the most difficult to provide for satisfactorily. It was pointed out in the last edition of this volume that “at present the work of the senior stage is in many schools too like that of the middle stage, and too little is done to meet the particular needs of the elder children.” The problem was intensified by the Education

Act of 1918, which, in many areas, practically added a year to the school course. Much progress, however, has been made towards its solution, by means of improvement in organisation and methods of teaching. It is now more fully realised that it is the task of the Elementary School not only to lay a sound foundation in the Junior stage, but also to train the children, during the Senior stage, to build intelligently upon it.

Self-education should be the key-note of the older children's curriculum, just as free expression is of the youngest children's; but in neither case is it expected that the teacher will abdicate. On the contrary, his work under the conditions which he will seek to establish is in some ways more difficult, certainly more delicate, than in the collective class-lessons, varied by collective class-questioning which have hitherto formed the staple of instruction, and must, of course, always have a place in it. If he is to deal properly with the private study of a senior class, he must know thoroughly the ground that is to be covered; he must provide or suggest the exercises or problems to be attacked and he must satisfy himself subsequently that what has been done by the individual scholar is really grasped. Work on these lines obviously requires the provision of suitable books; without a good historical text-book and atlas, for instance, private study of history or geography is impossible. A school library of good works of reference for use by teachers and scholars is of great value; it can be built up gradually without great expense if advantage is taken of any opportunity of purchasing books cheaply. Similarly, the extent and character of independent work by the scholars in such subjects as nature study or handicraft must depend partly on the equipment and surroundings of the school. But however excellent books or equipment may be, the instruction will only have its full effect when the teacher realises that his chief task is to teach the scholars to teach themselves, and adapts his methods steadily to that end.

The Education Act of 1921 requires the provision of "courses of advanced instruction" for the older or more

intelligent children in Public Elementary Schools. Advanced instruction does not necessarily involve extending the curriculum. It should consist, as a rule, of more advanced and more practical work in the various subjects studied in the previous stages, and should form a fitting preparation for any subsequent study in Continuation Classes. In English the scholars should read widely enough to give them some real acquaintance with and liking for good literature ; they should also learn how to make out the meaning of a passage for themselves and how to extract information from books and works of reference. Mathematics should include something of mensuration and, if possible, the use of algebraical symbols and graphical methods of representing variable quantities. They should be taught not only by methods based on the use of the printed and written symbols but also by concrete methods involving the use of apparatus and materials. In history, if circumstances permit, an outline of the national development might properly be filled out with some more detailed knowledge of local, social, or European history. Both in geography and in any branch of elementary science, which may be taken up, the scheme should require some practical work on definite problems from individual scholars ; the various forms which such work may take are described in the special chapters on those subjects. It should also be borne in mind that the oldest children are of an age to appreciate sensible lessons on health, home management, mothercraft, and citizenship.

The time-table for the Senior classes will differ materially from that for the Junior. Children are now more capable of a sustained effort, and the length of lessons may properly be increased. There are, it is true, certain subjects, for example, physical exercises and singing, in which a short period of daily practice is preferable to a longer lesson once or twice a week ; but, in other subjects, lessons for older children tend in many schools to be too short rather than too long. A period of 40 or 45 minutes is often desirable, especially as part of the time will commonly be spent in private study. A still longer period is required for lessons

in needlework, handicraft or subjects in which practical work by the scholars is indispensable.

Scholars, when admitted to the highest class, should have certain recognised privileges and duties which will enhance their position in the eyes of the school. They will naturally be selected as prefects or monitors; they may be made specially responsible for such duties as the care of the school library or museum, and the supervision of young or delicate children in the playground. Their privileges, as well as their duties, will vary in individual schools, but may include freedom in taking home books to read, using special pieces of apparatus, and so forth.

The teaching of the highest class will in the case of small schools fall rightly and inevitably into the hands of the head teacher; but this by no means implies that he should pass the whole of his time with it. Given sufficient industry and application, it will thrive best if left a good deal to itself. Even in large schools, which are staffed with an assistant teacher for each class, the head teacher should make this class his special care. He will determine in some detail its programme of work and time-table. In particular, he will see to it that when scholars spend more than one year in the class they are making adequate progress throughout and are not repeating, as too often happens, in "Standard ex-VII and VII," the studies and exercises of "Standards V and VI." As a rule, it is desirable that he should himself take some part in the instruction of his top class. His personal influence will thus be felt to the full by his scholars at one of the most critical periods of their lives, when they are just about to pass from school to the world.

36. Organisation.—Education, however, consists in dealing with individual children and not with children in the mass, and it is the problem of securing proper grouping or classification which lies at the root of the difficulty of making the instruction of the older children satisfactory. In many schools the same syllabus and the same methods of teaching have to serve for all types of children and the consequent waste of energy and loss of efficiency are excessive. Either the brighter children have to mark time while

the teacher endeavours to help on the slower ones, or, if the work is planned so as to give full scope to the powers of the brighter children, the rest are dragged along in their wake in a confused and disheartened condition. Even in departments which are large enough to admit of the forming of "A" and "B" classes in each standard it is far too common to find the syllabuses and methods the same both for the brighter "A" classes and the slower "B" classes, though it is obvious that they should differ widely in all the main subjects of the curriculum.

The Education Act of 1921 mentions Central Schools as one of the means by which advanced instruction may be provided, and in recent years many types of Central Schools have been set up in different parts of the country. For a full discussion of the organisation, objectives and curriculum of courses of study suitable for children who will remain in full-time attendance at schools, other than Secondary Schools, up to the age of 15, reference should be made to the valuable report recently submitted by the Consultative Committee.*

X. EXAMINATIONS.

37. The Internal Examination.—The necessity and value of internal examinations—which alone fall within the scope of this chapter—are generally admitted. If properly conducted, they help a teacher to estimate the effectiveness of his work and are a useful and stimulating exercise for the scholars.

In most Elementary Schools the head teacher has usually conducted an examination of all the scholars twice or often thrice in the year and the work of setting the questions and marking the answers has fallen mainly, and sometimes entirely, upon him. This may be inevitable in small schools: but in the larger schools it has meant an undue tax upon his time and energy.

It is, of course, essential that the head teacher should from time to time personally conduct an examination of the

* *The Education of the Adolescent.* Report of the Consultative Committee. Printed and published by H.M. Stationery Office, 1926.

school or of certain classes ; in particular, it is desirable that he should investigate a child's work at two critical stages of his school career, viz., about the age of 11 and shortly before he leaves school. But the head teacher's examinations in many schools would often have been more fruitful of results if they had been less frequent and more searching. The ordinary terminal examination which comes at the conclusion of any particular course of work, might well be left to the class-teachers under the head teacher's general supervision. The expedient, which is common enough in the large Public Schools, of allowing the assistants to examine each other's classes, is very rarely adopted in Elementary Schools, and is worthy of a more extended trial. It would often be useful for a teacher to examine the class immediately above or immediately below his own.

The examination of children under the age of eight will be largely oral, and the marks assigned will depend on personal impression of intelligence and promise rather than on any exact standard of attainment. Above this age the examination will be more formal and will include an increasing amount of written work. A fixed time should be allowed for the completion of the written exercises so that they may test speed as well as accuracy. The head teacher, if he conducts the examination, will naturally make himself acquainted with the class teacher's records and detailed syllabuses, and base his questions largely upon them. But the questions should not be limited to the work done in the previous half-year or year. Some of them should be so framed as to make sure that past work has been properly revised and that fundamental facts and principles have not been forgotten.

Again, the examiner's aim should be not so much to find out whether definite lessons can be reproduced, as whether the scholar possesses the power of applying his knowledge to the solution of fresh problems which are well within his range. This principle cannot indeed be applied quite rigidly. Questions which merely test the memory are inevitable in such a subject as history, and memory work

is not in itself to be condemned, if the things committed to memory are worth remembering. But the general rule is clear, though the exceptions to it are important. The tests in composition, arithmetic and drawing, for instance, should have relation to, but not be identical with, exercises previously worked in class. The examiner in geography will not demand mere facts, but will set questions, e.g., an exercise in map reading, which can easily be solved by the child who has properly digested his lessons. As a rule, the papers in most subjects should include difficult as well as easy questions. It is important for the teacher to find out not merely whether the work of the duller and average children of a class reaches a minimum standard, but also whether the abler scholars have made satisfactory progress.

Even when the examination is held by the head teacher, he need not mark every paper himself. In a large school he can often entrust the first marking to his assistants, though he should subsequently look through the papers and satisfy himself that in their marking they have followed sound principles. It may be observed that there is often far too little variation in the maximum mark for different subjects as well as in the marking of individual papers. It is only too common to find a very good paper and a very bad one assessed within a few marks of each other.

A well-conducted examination should show the head teacher and his staff how their schemes of instruction are working out in practice. It should enable the head teacher to lay his finger on strong and weak points, and to make detailed suggestions for improvement to his staff. For this purpose he should discuss the results fully and freely with the class teachers. The marks gained by individual children in each subject should be tabulated and made known to the class, the written paper should also be returned to the children and discussed with them. In many schools the results of the principal examinations are recorded in a child's school book or other permanent record. Such a record is often found to interest the parents and to be of value for employment, Continuation Classes, and other uses in after-life.

CHAPTER II.

ENGLISH.

SUMMARY OF CONTENTS.

I. RESPONSIBILITY OF THE WHOLE SCHOOL STAFF.

Section.

1. **English not merely a Time-Table Subject.**—Importance and all-pervasiveness of English. Direct instruction supplementary to indirect. Out-of-school influences.
2. **Every Teacher a Teacher of English.**—Need for co-operation between teachers in contributing towards the indirect or incidental teaching.

II. AIMS AND METHODS.

3. **Main Requirements.**—The main requirements and what they involve. Subdivisions of English not to be sharply distinguished.

A. SPEECH.

4. **First Steps in acquiring Language.**—Speech practice the primary task of the Infants' School. Natural informal conversation.
5. **Aids to Speech Practice.**—Pictures, nursery rhymes, stories, poems, games, dramatisation. Reasonable freedom in class.
6. **Articulation and Pronunciation.**—Early training essential. Importance of imitation, and of explanation of production of sounds.

It must be recognised that it is not through direct teaching, given in the limited amount of time which can be set apart in school hours for the purpose, that the mother tongue is actually learnt. It is learnt indirectly through hearing and use. A command of English can only be achieved by those who have had sufficient and satisfactory opportunities of being taught in the natural, i.e., the indirect, way.

In this indispensable indirect teaching the school must play a large part. Direct teaching of English is, of course, essential and has now gained a very important place in the curriculum. But the time available for direct teaching is too short for it to do more than supplement and regulate the knowledge of English gained indirectly. This is obvious when it is considered how slight is the command of a foreign language which children gain from studying it in school in comparison with the fluency with which they unconsciously learn to speak their mother tongue. On the other hand the out-of-school influences which affect the children's acquisition of English, though powerful, are not of a dependable kind. Before the child comes to school at all, the influences of the home and the street have begun to lay the foundations of his habits of speech, and all through his school career the same influences are daily at work for better or worse on his vocabulary pronunciation and modes of expression. If at home he hears English used well, comes into contact with ideas, and is encouraged to read, it is possible that he may thus gain a considerable proficiency in English. But it will frequently happen that the influence of the home and the street upon his English will be definitely unhelpful and lead to his acquiring a variety of faults which his teachers will find it very difficult to eliminate.

2. Every Teacher a Teacher of English.—Accordingly it needs to be strongly emphasised that every teacher of every subject should contribute his share towards the indirect or incidental teaching of English. This he should regard not as an additional or extraneous responsibility, but as an essential condition of teaching any subject successfully. He will not, of course, tolerate mistakes in pronunciation

or mode of expression, but his teaching of English should by no means be limited to their correction. Several subjects, especially when individual or private study methods are adopted, are studied largely from books by the pupils themselves, and there is no fundamental difference between the way in which a book should be read in, for instance, a history or geography lesson, and the way in which a book should be read during the lessons which are labelled "English." The study of any book is necessarily a language lesson, and if this is duly remembered in the lower and middle classes the pupils in the higher classes will be fitter to cope with the difficulties of their more advanced work. The children should be required to do much more than make brief answers to questions put by their teachers. They should be encouraged to restate the substance of what they have read in words of their own, and with their teacher's help to turn it over in their minds till they apprehend its meaning completely. For this both oral and written exercises will be needed. Apparent failure when the work in various subjects comes to be tested is often due, not to the dullness or inattention to which it may be attributed, but to the pupils having received from what they have listened to or read, only ill-defined impressions instead of clear ideas. It is often not realised how many expressions, even in books specially written for children, are not understood by them because the language is totally different from the language in which they themselves are accustomed or able to think. Phrases like "industrial expansion," "signs of intense volcanic activity," "this fertile ground of contention," "similar stages of development," are likely to remain quite without significance to many of them unless they are required to translate them into simpler and more concrete form.

More reciprocity might well exist between the teacher of English and the teachers of other subjects. Thus, as the result of a mutual understanding, extracts from such books as Scott's "Last Voyage to the Antarctic," Whymper's "First Ascent of the Matterhorn," Nansen's "First Crossing of Greenland," Steevens's "In India," Livingstone's

or Stanley's Travels, "The Voyage of the Sunbeam," or some other book bearing on the class scheme in geography, might be read aloud either by the English or by the geography teacher. Similarly the reading of extracts from biographies, historical novels, or essays or poems on historical characters or events might be arranged by consent between the teachers of English and history and reinforce the efforts of both. Science and English might join hands over such books as Ray Lankester's "Science from an Easy Chair," or W. H. Hudson's "Birds in Town and Village." Brief lectures by individual scholars might be arranged by various teachers so as both to further the study of the subject dealt with and to give practice in English. In return the English teacher might arrange a debate, or commission some members of his class to write an essay, or even a play, on a subject for the teaching of which one of his colleagues was responsible.

Religious Instruction again must inevitably have a great influence upon the children's understanding and use of English. No book has in the past played so great a part as the Bible in familiarising the mass of the people with noble English. The study of portions of the Bible will, in the vast majority of the schools, form an essential part of the Religious Instruction. During these lessons the children will frequently be reading aloud or reciting and the teacher who demands from them a high standard of performance in these exercises will obviously be making a valuable contribution to the teaching of English.

But whether he is dealing with books or not, the teacher must always be endeavouring to communicate ideas and if he is to succeed, he will constantly find himself conducting an exercise in English. The explanation of arithmetical processes is essentially a matter of clear logical statement. The teacher of practical subjects will expect from the pupils carefully worded descriptions of processes and explanations of principles. Even the playing of games like cricket and football is conditioned by precisely drafted rules the word-for-word study of which is an excellent exercise in English. But whatever the subject may be, the

teacher should be chary of assuming that his pupils have really observed or comprehended any fresh point until they can express it clearly in terms which they have made their own. And if he takes care to prepare their minds duly for entry upon the more advanced stages of his subject, he will often find that what he is called upon to do is in essence to expand, strengthen and purify their English. "It is impossible to teach any subject without teaching English; it is almost equally impossible to teach English without teaching something else."*

II. AIMS AND METHODS.

3. **Main Requirements.**—These may be briefly set out as follows :—

- (a) *Training in Speech.*—To secure distinct articulation and correct pronunciation, also ability to talk English, i.e., to make statements and express thoughts and feelings clearly and correctly in speech and to listen to and understand spoken English.
- (b) *Training in Reading.*—To secure ability to derive from books a full measure of what they have to give of information and enjoyment, also ability to read aloud in such a way as to command attention and give pleasure.
- (c) *Training in Writing.*—To secure lucidity, accuracy and fitness in written statement and expression.

Above all, the school should give training in clear thinking, for there can be no clarity of expression without clarity of thought.

Every lesson in English should directly further one or more of these aims. There should be no vagueness or lack of definite purpose in the teaching. But the direct teaching of English should not connote to the teacher merely a conventional series of quasi-subjects—reading, recitation,

* Report of the Departmental Committee, *The Teaching of English in England*, page 63, section 64.

writing, spelling, dictation, composition, grammar and so forth. All these need to be practised as valuable parts of the teaching of English, but they are mutually interdependent and if a teacher attempts rigidly to apportion his time between them there is danger that his work may become mechanical. Nor should he suppose that the only way to secure recognition for any essential process in English teaching is to give it a place on the time-table. Training in oral expression is of the greatest importance, but it does not follow that separate lessons should be given in "oral composition." Practice in speech and oral expression should be spread over all the lessons; and, indeed, the teaching of each of the subdivisions of English must often take the form of teaching one of the others.

SPEECH.

4. First Steps in acquiring Language.—In the early years of school life, especially when it begins at the age of three, the teaching of English consists of speech training. At this stage there is no distinction between direct and indirect teaching: instruction in speech must form the direct part of every lesson throughout the day, for the enlargement of a child's ideas is inseparably bound up with the acquisition of new words and expressions. Training the child to talk freely and distinctly may be not unfairly described as the primary task of any Infants' School or class. For this purpose opportunities for talking should not be restricted to a few so-called conversation lessons; on the contrary most of the school hours should be devoted—above all, with the youngest children—to informal conversation between teacher and scholars. Such conversation will arise naturally, when the children have overcome their first feeling of shyness, on an unending variety of topics—themselves, their homes, the schoolroom and its contents, the occupation in which they are engaged at the moment, etc. It should follow a natural, not a prearranged course, and the more reticent as well as the more talkative children should be drawn in. From the first the children should be encouraged to ask questions, since these will indicate their

interests and also the directions in which their vocabulary needs supplementing.

5. Aids to Speech Practice.—Pictures and picture-books excite questioning and talk among children more readily, perhaps, than any direct statement by a teacher. It is now generally realised that an abundant supply of these is essential in every Infants' and Junior School. Certain Local Authorities arrange for the exchange of portfolios of pictures between school and school, a plan which secures the necessary variety at a minimum of expense.

Much use should also be made of nursery rhymes, simple poems and songs, fairy tales, folk-lore and other stories. These should be told or read to the class by the teacher, and it will not matter if the meaning of occasional words or phrases is unknown to the children. So long as the main idea and spirit of the rhyme or story are appreciated, it is unwise at this stage to break the unity of the impression by overmuch explanation of details. The desire to avoid difficulties of language should certainly not lead teachers to choose poems, songs and stories devoid of literary merit and lacking the very qualities of vigorous rhythm and diction which appeal to young children. Experience shows conclusively that children from an early age demand genuineness and gusto in their literature. They enjoy the easier poems of such writers as R. L. Stevenson and A. A. Milne, the fairy tales of Hans Andersen and the brothers Grimm, or such stories as those of Beatrix Potter, more keenly than books in which they can detect condescension to their own level on the part of the author.

When the class have heard the piece, it may be repeated or retold by individual children. The interval between hearing and reproduction will vary according to their age and capacity, and the repetition will take different forms. At first, and throughout in the case of nursery rhymes and poems, it will consist of exact reproduction of the words of the teacher. At a later stage, e.g., by the age of six or seven years, the child may be allowed to vary the expression for himself, or in company with others to dramatise the story, if the subject is suitable. The love of acting, which

is so characteristic of children, may properly be encouraged in Elementary Schools. This is, of course, only one instance of the judicious use of play in the development of speech ; many others will suggest themselves to any resourceful teacher, e.g., guessing games, in which children are called upon to describe things without actually naming them, and to identify things as described by other children.

The chief purpose of these exercises is the enlargement of vocabulary and the attainment of fluency in the use of speech. Beginning as the merest chatter and developing into connected and continuous speech, they should be practised steadily through the six or seven years spent in the Infants' and Junior School. It was at one time the practice to insist on an unnatural and unnecessary standard of quietness in schools and classes for young children, with the result that attendance at school often rendered scholars less instead of more communicative. This mistaken conception of order has now largely passed away and in good Infants' Schools it has been found possible to allow children a large measure of freedom in talking both to the teacher and to one another. Where classes are large, children should be allowed to converse with one another during the intervals of rest between lessons ; even during a lesson the class may be divided into sections for this purpose. The disturbance caused is, under proper supervision, more apparent than real and such a plan helps to overcome the difficulty of giving each member of a large class sufficient opportunity for practice in speech.

On the other hand the practice of collective answering or collective repetition by the class, though it affords additional opportunities for speech, has been wisely discontinued by most teachers. In districts where the pronunciation is bad it may help to raise the standard up to a certain point. But frequent recourse to it is an actual obstacle to development of genuine thought and free expression, and the child who is accustomed to it rapidly loses any desire or ability to act or speak by himself. Throughout the lessons the teacher's aim should be to train the children to talk individually.

6. Articulation and Pronunciation.—The word “speech” is ambiguous. It is used in a wider sense for oral expression, which has just been discussed. It is used in a more limited sense for those particular qualities of articulation, pronunciation and intonation which characterise utterance. In the work of engaging the children in natural conversation and so gradually developing their power of oral expression many schools are eminently successful. But speech in the more limited sense of the term does not receive uniform attention and remarkable contrasts occur between the results in schools which deal with it systematically and those which do not. This kind of speech training is pre-eminently a matter in which the teacher cannot afford to wait. The amount of talking which a child does out of school is incomparably greater than the amount which he can possibly be allowed in school, and if he is acquiring slovenly and incorrect habits of speech out of school the effort to counteract them must be begun at once if it is to be successful. It must certainly not be assumed to-day that uncouth speech is the natural heritage of any English children.

Faults of utterance are of two chief kinds :—(i) Indistinctiveness of articulation—the sounds of which the word is composed not being definitely produced ; (ii) incorrectness of pronunciation—the wrong sound being made instead of the right one. When the children are being practised in conversation or in continuous narration, the teacher should avoid throwing them out of their stride by interrupting them constantly in order to correct these and other faults, except in the case of glaring vulgarisms. Their mistakes should be dealt with at another time, if necessary. But when they are repeating nursery rhymes, or stories which they have practically memorised, good articulation should be insisted on. Suitable breathing exercises should be given and the children should have constant practice in repeating after their teacher particular words or phrases over which they are apt to stumble. A special point should be made of the clear enunciation of the consonants. The singing lesson, and reading, as soon as it is begun, will afford valuable opportunities for training in articulation.

In most schools the training depends almost entirely on conscious or unconscious imitation of the teacher, who should therefore be specially on her guard against falling into habits of slipshod and indistinct speaking, or of artificial and strained intonation. But she should also be able, when necessary, to explain and demonstrate to the children how different sounds are produced. The valuable and comprehensive *Report on Speech Training*, published by the London County Council in 1916, recommends the systematic study of the way in which the sounds of which speech is composed are actually produced.

7. **The Problem of Dialect.**—Indistinctiveness of utterance, in children who are physically capable of speaking distinctly, ought not to be excused on any grounds. It is due chiefly to laziness in the use of speech organs. But training in pronunciation presents certain special difficulties. It may be taken for granted that the teacher should aim at teaching "Standard English." "Standard English" need not be interpreted in a narrow and pedantic sense. But the English to be aimed at should be at any rate a kind of English which both in idioms and in pronunciation is intelligible all over the country and in pronunciation approximates to that which is used, though with many permissible if minute variations, by educated persons. In matters such as accentuation and "quantity" the teacher is bound to be dogmatic; also, he cannot but insist upon the sounding of consonants which are dropped in speech which is blurred and slovenly. But in various parts of the country dialects are spoken which differ materially from Standard English in pronunciation and also in form. Some of these dialects have a history and associations which entitle them to respect; others are regarded, not always on logical grounds, as debased and reprehensible. Teachers should not consider themselves in any sense called upon to extirpate a genuine local dialect.

Two main difficulties confront the teacher: one is how to deal with the widely different grammatical idioms of the dialects, the other is how to deal with the peculiar sounds of the dialects, especially the vowels, when they are very

unlike the "standard" sounds. The first may be made an opportunity for teaching the general rules to which modern English conforms. The second is more serious. It is probably hopeless to attempt in a Tyneside school to eliminate the "burr" peculiar to the district or to supersede the full "u" of most schools in the North by the "u" which would be heard in London, in the pulpit, or on the stage; and, although the attempt has been made not without success, it is extremely difficult in London and the South to eliminate the peculiarities of sound which commonly go under the name of "cockneyisms." Yet experience shows that it is not impossible to encourage, at least for public occasions, a pronunciation in which the variations from the normal are diminished. The children would then be bilingual, no doubt; speaking one language at home and another at school. Provided that the school language is treated with proper respect and the home language not scorned as if it implied some moral obliquity, the charge of bilingualism need not be a reproach.

People who speak widely different English dialects sometimes have a real difficulty in understanding each other, and an inability to speak a fair approximation to Standard English is in other ways a practical handicap. It has proved possible even in remote country schools, where the ordinary pronunciation is of a most rustic kind, for the children to acquire from their teachers a very correct and pleasing mode of speech and when once the speech of the majority of the children has been purified they unconsciously supplement the teacher's efforts by the standard which they set.

As the Report of the Departmental Committee puts it—"English children . . . are surely entitled to be taught in a scientific and effective way, the accepted speech of their own country." It is certainly an anomaly that while our spelling, which is anything but a reliable guide to the pronunciation or the antecedents of English words, is treated with scrupulous respect, so much scantier consideration should be given to the spoken word, of which the written word is but the symbol. Seeing that speech

depends upon the combination of certain sounds, English children might advantageously consider, at some stage in their school career, what these sounds are in the case of their own language. They should at least distinguish the different vowel and diphthongal sounds, and they will find it both helpful and entertaining to discuss with their teachers and with each other how they sound particular words and how they ought to sound them. If they need some means of indicating the sounds in writing they will find no difficulty in learning the necessary phonetic symbols.

READING.

(i) THE JUNIOR STAGE.

8. **Learning to read.**—It has been pointed out in a previous chapter* that children should not begin reading till they have acquired facility in speech and a fairly large vocabulary. It is not that the task of learning to read, i.e., associating certain sounds and words with certain printed symbols, is intrinsically much more difficult than what they have hitherto been doing, i.e., acquiring ideas and associating them with spoken words. But good progress in this, the first stage of learning English, is so essential that the children's interest ought not to be prematurely diverted from it to reading or any other particular study.

It is unnecessary in this chapter to describe or discuss in detail the numerous methods which have been devised to make the first steps in reading easier. The importance of these methods, compared with the personality and skill of the teacher, is easily exaggerated, and experience shows that no one of them can claim a monopoly of good results. It will be sufficient to draw attention to some general principles which underlie successful treatment of the subject.

The first steps in reading should be regarded by the children as a game, and the game will be all the more attractive if they are given from the first some idea of the pleasure which reading is likely to bring them. This idea

* *The Teaching of English in England*, page 68, section 70.

soon comes to children who have been accustomed to listen with enjoyment to the reading of stories by their teacher, or who have constantly found the meaning of a picture interpreted at once for them by their elders from the mysterious symbols beneath it. For the same reason, the teacher will do well to select, for the first lessons in reading, words which from their connexion with the child's stories, pictures, or surroundings (e.g., the objects in the school-room) have a natural interest for him. He will then from the outset regard reading not as a mechanical trick but as a means of getting at ideas.

As soon as children have mastered a large number of common words printed on the blackboard or on reading sheets they should be given a primer or easy story-book. The primer must be graduated with reference to phonetic difficulty, but it is more important that its contents should appeal to the children than that the graduation should be rigidly systematic. Nor need teachers be afraid of using an easy story-book because it contains occasional difficult words. They need not explain and teach every word once for all the first time it is met with, for even if a word is not remembered from one occasion it will recur probably a score of times during the next few years.

9. Practice in Reading.—The large size of the classes in many urban schools renders it difficult to give each child the necessary amount of practice. The expedient of simultaneous reading by a large class in unison—not to mention its other disadvantages—is of little or no use, since the majority of children simply repeat the sounds suggested by a few of their fellows or by the teacher, without really studying the printed symbols. This difficulty cannot be entirely overcome, but it may be mitigated by adopting a plan familiar to country schools. After a few months, even in an Infants' School or class, children will be found to vary much in their power of reading, owing to differences in natural quickness and home influence. The best of them may be classed in a separate section, promotion to which can be treated as a reward, and may properly be left to try to make out a few paragraphs of their

book by themselves, while the teacher devotes the major part of her time to the less proficient. They should be encouraged to help each other, and to note the words which they have failed to recognise with the view of asking the teacher about them afterwards. In the hands of a skilful teacher, who has made the children anxious to learn to read, this plan produces surprisingly good results. Indeed, in certain Infants' Schools in which individual methods are applied with success the children really teach themselves to read. They are given a start by being taught a certain number of easy words, and then, with the help of such apparatus as pictures of unmistakable objects with the names first attached and afterwards separate, boxes of letters or words, etc., they prepare themselves for the reading of primers and story books.

The plan of breaking up the class into sections for reading, and allowing the better readers to work by themselves, even if only used occasionally in infants' classes, should be adopted with increasing frequency in the case of children from seven to ten years of age. It makes considerable demands on the skill and resource of the teacher, for she must possess not merely the ability to ascertain by judicious questions where help can be given, but also the power (which is one infallible sign of a real teacher) of perceiving, as it were instinctively, when a child is working and when he is merely idling with eyes fixed on his book. It is true that at first a great deal of practice in reading aloud will be necessary, especially with less proficient scholars, in order to correct mispronunciation of words and to secure reasonable fluency. But silent reading for "content" is what the reading lesson should gradually come to mean to most of the children; it should on no account be supposed that silent reading is something of which only the senior classes are capable.

10. The Reading Lesson.—It is very important that almost from the earliest stage children should be taught to make the phrase and not the word the unit of reading. Every care should be taken to prevent the reading practice taking the form of the monotonous droning of apparently

unrelated words. Such a performance is still far too common and when it becomes a habit it is most difficult to eradicate, sometimes persisting even high up in the senior school. What is really needed is the complete disappearance of the traditional reading lesson, the lesson which consists solely of setting child after child, often in a large class, to read aloud a few lines in turn without previous preparation, while the rest of the class are required to follow word by word. There is really nothing to be said for this type of lesson except that it is the easiest way of getting through the period allotted to reading on the timetable, and its persistence helps to explain the statement in the Departmental Committee's Report that "of all the aspects of the teaching of English, it is the reading aloud that our witnesses have criticised most severely."

Reading aloud should mean the practising by a group of children, under the guidance of the teacher, of the clear and effective rendering of a paragraph, story or poem. Or it should mean the reading to the class of something likely to interest them by children who have previously prepared carefully what they are going to read, if possible with the help of the teacher. They should feel that their object in such reading aloud is to give pleasure to a listening audience, an idea which can seldom enter their heads during the traditional reading lesson. Or reading aloud should mean the reading by the teacher to the class of some carefully chosen passage, which, if she has a high conception of what the art of reading aloud really is, she will find it necessary to prepare beforehand. The teacher's standard will be the chief factor in determining the quality of the reading aloud in her class. The children should be encouraged to criticise and discuss each others' performances.

The essential quality which should be secured in reading which aims at giving pleasure is clearness of utterance. The reader should be easily audible to all who are supposed to be listening to him. Next, he should read with sufficient fluency to keep the listeners' attention. Further he should read with expression. Expression should not be thought of as something which is to be brought into the reading

after a certain stage of mechanical proficiency has been reached. If children understand, as they should, the meaning of what they read, they will read with expression, modulating their voices naturally and throwing the accent on the key word of the phrase or clause. The teacher should not tolerate, much less require, exaggerated or affected "expression," nor give such merely mechanical rules as "raise the voice at a comma." The children should not be allowed to suppose that their pauses should be entirely regulated by the punctuation marks; they should consider for themselves how each sentence may be most effectively phrased. The teacher will find herself better able to criticise the reading, especially from the point of view of clearness of articulation, if she does not always follow it in her own book. Otherwise, she may often be led to pass over faults, e.g., mumbling or slurring of sounds, which could not have escaped her notice had she been entirely dependent for knowledge of what was being read on the child's own rendering.

11. Choice of Books in the Junior Classes.—It is a matter of the first importance that a child's progress in English should not be stinted for lack of books. One of the chief advantages of the child whose home circumstances are favourable is that he has access to a number of books and has no occasion to read the same ones over and over again. But there is no reason why children should not be better off for books at school than they can expect to be at home. Each class will probably want complete sets of certain books which can be varied by means of exchanges between one class and another. But more important than the provision of sets of books is the provision on a generous scale of copies of the best type of children's books for the class or school library. A wide choice of books will then be available for each scholar.

In books chosen for Infants' and Junior Classes, the language should, in general, be simple and clear, though, as has been explained, occasional phrases or expressions of some difficulty need not be excluded; and the subject matter should be in itself directly interesting to young

children, and likely to stimulate their curiosity to hear more of it. It can hardly be doubted that this latter condition is best satisfied by easy continuous stories, imaginative, romantic, or amusing. Fairy tales, legends and myths, stories about animals, as well as stirring incidents in the lives of great men and women, adventures and experiences of children—all these furnish an abundant supply of suitable reading matter, and, in one form or another, will be already familiar from oral recitals in the infants' class.

If children evince a desire for books which will help them to find out something which they want to know, their needs should be met, as far as possible. On the other hand, history, geography, or elementary science readers, which are sometimes distributed owing to a dearth of suitable books, are not suitable for use during the reading lessons. They are intended for systematic study during the periods allotted to the subjects with which they deal and should not be used for practice in reading aloud, nor given to the children to read to themselves in place of prose books of the types mentioned above.

12. Poetry in the Junior Classes.—Side by side with the reading and learning of easy prose should go the reading and learning of English poetry—an exercise which has always been regarded as perhaps the most potent means of awakening a love for the beautiful in thought and language. In the early stages, before the children have learnt to read, the teacher will have made much use of nursery rhymes and simple poems or songs, and the repetition of these by the children will have begun that training in clearness of articulation and naturalness of expression which the reading aloud will continue. But between the ages of 7 and 10 children will naturally pass on to poetry of a different kind. Nothing in the teaching of English requires more discretion on the part of the teacher, or, it must be added, tests her own competence and appreciation of literature more severely than the choice and treatment of suitable poems. It is neither possible nor desirable to lay down precise rules on the subject, but attention may properly be called to a few general principles.

In the first place, the poems chosen should be, of their kind, first-rate. The short period over which the education of an Elementary School child extends is in itself a sufficient reason against wasting his time and energy on the trashy or mediocre. In the second place, while it is even less necessary in poetry than in prose that every phrase or word should be understood by a child, the main story or leading idea of a poem should be within his grasp, and a well-marked rhythm and swinging metre are most valuable aids to appreciation at this early stage. For these reasons narrative poetry in the form of the ballad generally appeals to young scholars, and English literature affords ample supply of suitable poems of this description, both ancient and modern. Some of the old ballads, and many narrative poems and lays by Scott, Campbell, Cowper, Macaulay, Longfellow, Tennyson, Arnold and many contemporary poets appeal at once to children. Similarly, poetry directly descriptive of the more striking aspects of nature, or of childish experiences (e.g., some of the poems of R. L. Stevenson, A. A. Milne, W. de la Mare, Sir Henry Newbolt, John Masefield, and many others) can find a place in the instruction of young children. On the other hand, it must always be remembered that the language of a poem may be extremely simple and easy but its leading idea correspondingly difficult; this, for example, is frequently the case with many of the poems descriptive of Nature in such writers as Wordsworth and Shelley. In general, poetry which aims at the description of complex emotion, or which consists mainly of reflection on the deeper questions of human experience, e.g., love or death, is unintelligible to children, however vivid or sublime its appeal to the mature mind.

Selection of suitable poems is an easier task if children are provided, as soon as possible, e.g., at the age of eight or nine years, with poetry books of their own. Many suitable anthologies are now available and they should be used for reading as well as for recitation. For purposes of reading aloud poetry is really more suitable than prose, owing to the help afforded by rhythm and metre, and this is now recognised much more fully than formerly.

Much has been written on the methods of teaching poetry to young children ; but it appears very doubtful whether the subject admits of the prescription of any such definite rules as may appropriately be given in some other branches of instruction. Treatment of a poem must vary partly with the poem itself, and even more with the skill of the teacher as an interpreter of literature. A plan frequently followed is to introduce the poem to the children by a short talk on its leading idea or story, with the aim of creating an appropriate atmosphere for it, and of awakening the children's interest. This plan demands marked ability on the part of the teacher, if the danger is to be avoided of obscuring by a cloud of talk the direct appeal which great poetry makes, even to children. Similarly, it may be and often is necessary to explain the meaning of difficult words or phrases in a poem ; but to treat it as an exercise in the learning of " meanings," or to use it for preliminary lessons on grammar or spelling, is a sure way of preventing any perception of its beauty. In general, it is easier for the teacher to err by excess than by defect of explanation, and any explanation that she does give is most likely to be valuable if it arises out of the children's own questions or comments. One means which may safely be adopted—and it is in itself no easy task—is for the teacher herself to read the poem aloud with real feeling and appreciation, thus allowing it to speak for itself with full force.

Recitation should flow naturally out of the reading. Whatever method of dealing with a poem the teacher may adopt, the children should come to understand it as fully as possible and it should also be read several times by members of the class both silently and aloud. A poem, like a piece of good music, can be returned to and re-read or heard afresh with increased enjoyment much more easily than a piece of prose. Poetry thus studied will be partly memorised by the children in the process and they should be encouraged to select for themselves the pieces which they like best and to memorise them completely. Their delivery of these specially chosen pieces should represent their speech at its best.

(ii) THE SENIOR STAGE.

13. **Reading in the Senior Classes.**—By the time he reaches the Senior Stage a child should, as a rule, have mastered the mechanical difficulties of reading, that is, he should be able to recognise words and pronounce them rightly. He will not, of course, be able to understand and pronounce rightly every word he meets, but his difficulties will lie, in the main, not with the forms of words but with their meanings.

This development on the part of the child will demand a corresponding change in the methods employed by the teacher. The child has, in fact, now learnt to read and no longer requires reading lessons of the same kind that he required when he was learning to interpret the printed symbols. It is true that many children reach the upper classes of Elementary Schools without being able to recognise quite ordinary words, probably owing to the fact that proficiency in English is not sufficiently taken into account in the classification of the scholars. Such children will need special attention and should not be grouped for English with those who can read fluently. But the proper business of those who are ready for the Senior Stage is not learning to read, but reading. It may be advantageous to indicate this change in the purpose of the lessons by dropping the term "Reading" (with its inevitable suggestion of reading aloud or learning to read) from the Senior School time-table and substituting "Literature" or "English books" for it. To assign separate periods to reading and literature is to make an unnecessary and meaningless distinction.

A very large proportion of the training in English which the Elementary School should give might be described as "The Use of Books." Books should be used as a source of enjoyment, as a means of gaining information, and for the purpose of language study. These three purposes will, of course, often overlap one another, but the teacher should have a clear idea which of them is uppermost on any particular occasion. It has already been stated that the traditional reading lesson might with advantage disappear altogether, but it will not be sufficient merely to

replace it by the distribution of books for silent reading without making arrangements to ensure that the time available shall be put to systematic use. The mere fact that the children are reading should not satisfy the teacher.

(a) *Reading for Enjoyment.*

14. **Cultivation of Taste.**—The most general stimulus to reading is pleasure, and the teacher's task will not be to convince the children that reading can afford pleasure—that they will have discovered at an early stage—but to enhance the quality of their pleasure by helping them to find it in good books. If he is anxious to avoid unreality he will certainly take an interest in the private reading of his pupils. He may possibly find that many of them spend their pennies on magazines and stories which, though morally innocuous, tend in some ways to impair their taste and falsify their views of life. He would be ill-advised to condemn such reading off-hand. Reading simply as reading is to be welcomed in children as an asset of great possibilities. At the same time, while reading may afford satisfaction to some of the highest of man's aspirations, it may also degenerate into an idle and mind-impairing habit. Wise guidance is therefore most desirable, though it is not an easy matter. It is no use recommending to children for their private-reading books which are not likely to entertain them. The teacher should meet them on their own ground and do his best to introduce them to books which, while meeting their demand for incident, adventure and excitement, are good examples of literary craftsmanship. We should "offer to the young nothing which is not in some degree a work of art, the sincere expression of the writer himself."*

In determining his methods of treating literature in school the teacher should also bear in mind the children's capacities, likes and dislikes. His procedure should be constantly varied. Rigid adherence to any prearranged course of reading is not advisable : when possible the scholars

* The Departmental Committee's Report, *The Teaching of English in England*, page 339, section 308.

themselves should be allowed the initiative, and interests when aroused should be pursued. Most of the reading will, of course, be done silently. The children will, as a rule, be reading different books and the teacher will probably spend a good deal of time moving about the classroom and chatting with individuals or groups about the books on which they are engaged, ascertaining whether they have secured books which suit them, whether they are really reading or only toying with them, and whether they are in need of any special help. He will obviously find it very useful to have made himself acquainted, as far as possible, with the various books in circulation. It is a good plan for the teacher from time to time to take one book with the whole class, though it should not as a rule be read round by the scholars in turn, and to use it as material for conversation lessons and written exercises. Frequent reading-aloud by the teacher of specially chosen passages in order to stimulate the interest of the class or to form their taste cannot be too strongly recommended as a means of enforcing the appeal of literature.

15. Choice and Treatment of Books.—The books chosen should deal, in the main, with human action and with motives which can easily be understood, and the story element should predominate, though in the higher classes books of a more serious type, such as tales of travel and exploration, biographies and selected essays, may also be read. Fables and legends, tales of romance and adventure, with which the lower classes should have become familiarised, should be continued, though in more elaborate form in the upper ones. Probably longer stories, such as Kingsley's "Water Babies," or "Heroes," will be more suitable than collections of shorter stories, though these need not be excluded. In addition the children should, in the course of the year, read some good novels which have proved well suited to the capacities of children and popular with them. Among such books are "Robinson Crusoe," "David Copperfield," "Ivanhoe," "Treasure Island," "Westward Ho!" "Tom Brown's School Days," "Silas Marner," "Children of the New Forest." But a teacher who feels that he himself

needs a change from the old favourites should not hesitate to experiment. Certain magazines also provide excellent material.

The dramatic sense is strong in most children and the reading and acting of plays should not be omitted. It cannot be too often repeated that to secure the children's interest in good literature is the first consideration, and if a teacher feels the performance of a suitable play to be a project which the class would take up with enthusiasm, there is no reason why the time allotted to literature should not be devoted to this purpose for a considerable period. In spite of the many difficulties which Shakespeare presents there is no doubt of the enjoyment with which children read and perform some of his plays and scenes. "The Rivals" and "She Stoops to Conquer" might be taken with success by older scholars, and there are numerous modern plays such as Galsworthy's "Strife," Drinkwater's "Abraham Lincoln" and some of Lady Gregory's Irish plays which might well find their way into the Elementary School.

16. Mistakes to be avoided.—Certain possible mistakes require to be guarded against. One is that of treating literature merely as a "knowledge" subject and substituting lessons about authors and their works for the reading of the authors themselves. If the children have already read with enjoyment some of the works of a notable author they may wish to learn something of his life and the circumstances in which he wrote. But nothing is more calculated to defeat the whole object of the literature lessons than to devote the time which might be spent in enjoyable reading to accounts of the lives of authors in whom the children have as yet no interest or of books which they have not read. Anything like a survey of English literature is totally out of place in an Elementary School.

Another possible mistake is that of including in the course of reading books which are beyond the scope of the children. It is possible to create a lasting distaste for a good book by introducing it too soon. Certain famous English writers,

e.g., Bacon, are obviously unsuitable. But even such authors as Scott, or Dickens, or Shakespeare, some of whose works make a strong appeal to children, need to be handled with discrimination. Few practical teachers would deny that most children in Elementary Schools find it difficult to get behind the veil of Scott's style and language, which is alien to anything of which they have experience, and to enter into the spirit of his romances. Much of the best of Dickens's work cannot be appreciated by the young and inexperienced. In taking a play of Shakespeare the teacher must know as by instinct what to emphasise and what to withhold; which passages or situations to pass over rapidly as unessential to the course of the play, and which to omit altogether as being beyond the children's understanding, or otherwise unsuited to their years.

Another way by which English classics may be spoilt in advance is the use of certain kinds of abridged editions. Abridgment which shortens or omits what is too detailed or unsuitable for children is not open to objection, but abridgment which adapts and alters may merely substitute an inferior book for a masterpiece. The practice of boiling down great works into easy stories for children has often very different effects from those presumably intended.

One teacher will lead children to like and appreciate books which under another teacher will be read by them as lifeless task work. Hence, it is desirable that whenever possible the conduct of the reading should be entrusted to a teacher who is a lover of good literature. The appreciation of literature cannot be taught; it can only be communicated, as it were by infection. The exceptional teacher can do almost anything, but this very fact involves a certain danger. The teacher must make sure that no impassable gulf is opening out between what the children can appreciate for themselves and what he is presenting to them. He should satisfy himself that the work is free from insincerity or superficiality and that the children's interest is something more than a reflection of his own and rests not merely upon vague fascination but upon a due measure of understanding.

17. Reading aloud.—Reading aloud is the most potent means which a teacher possesses for awakening in his scholars an appreciation of literature. He should be on his guard against supposing that reading aloud is an easy matter, but should carefully study the principles upon which it should be based and endeavour to put them into practice. He should select with care suitable passages of prose and verse for reading aloud to his class.

The scholars should practice reading aloud as a fine art which aims at giving pleasure to others both in the home and in the school. Two faults which should specially be avoided are artificial modulation of the voice without due respect to the meaning, and exaggeration of emphasis. The scholars should realise that their object must be to reveal by their reading the full meaning of the author. The niceties of rendering should now be carefully studied. Such points as where breath should be taken and pauses made; the best way to phrase a sentence; the effect of changes of emphasis, tone and speed, should be discussed. Drama both in prose and verse should often be read; also passages from the Bible. Different renderings of the same piece should be compared and criticised by the class. It should be remembered that punctuation is a guide to the eye rather than to the voice. The scholars should practice the level fluent reading of a plain narrative from a newspaper or magazine as well as the more difficult art of interpreting passages which are charged with emotion.

There is a particular reason why poetry should be read aloud in class. If it is not, children may never learn to appreciate it as poetry, since in a child suggestive sound awakens more poetic emotion than delicacies of language. Poetry should not be read like prose, but emphasis should be placed on those elements of metre and melody on which so much of its peculiar effect depends; and it should be read with feeling, since emotion is eminently contagious. But the feeling must not be exaggerated; the reader must not be trying to add to the poem something of his own but simply to convey to his audience the feeling with which the poem inspires him. In the reading of poetry regard

for the meaning and regard for the metre, rhythm and melody should be carefully balanced.

In reading aloud the eye must keep well ahead of the voice. The reader must be able to take in at a glance the meaning and structure of a phrase or clause and to perceive how it should be read before he attempts to read it. Ability to do this depends mainly upon long practice in silent reading. The mere spending of time on reading aloud without effective criticism is of no value.

18. Poetry in the Senior Classes.—Though, even in the highest classes, poetry will appeal to the children largely through its form, it will also appeal to them in an increasing degree by virtue of its matter. They need not wholly understand the poetry they read or learn, provided that it is good in itself, and has a fascination for them. At the same time, it must convey some meaning, though not the full meaning it would have for a grown person.

Opinions will differ greatly as to the type of poetry suitable to children at this stage. On the one hand, many pieces, like Gray's "Elegy" and some of the more highly rhetorical passages from Shakespeare, which they are frequently expected to enjoy, presuppose at least a much riper experience of life than they generally possess. On the other hand, in the wide field of English poetry there is room for legitimate differences of taste among children as among adults. The degree of culture prevailing in the homes of the scholars and the capacities of their teachers, both of which circumstances are of vital importance in this connexion, vary in different schools. A poem, which in one school and under one teacher may be keenly appreciated, may prove elsewhere a hopeless failure. For these reasons, to prescribe certain poems as universally suitable for older scholars in Public Elementary Schools would be undesirable and misleading. It is also unnecessary, since recent years have seen the publication of numerous anthologies of poetry for the use of children. Responsibility for the selection of pieces from a suitable anthology must rest with the teacher, who is—or should be—in a better position to judge the tastes and needs of his pupils than any external

authority. It is not possible to lay too much stress on the importance of his choice, or on the necessity of his exercising care and discrimination in it. The harm done by use of inferior or worthless poetry is not limited to waste of time and effort during school hours ; the result will probably be a permanent dislike in after-life for the only form of great art which is easily accessible to the mass of his scholars.

The pupils need not all learn the same piece or the same number of lines for recitation. Individuals should be encouraged to make their own choice and to this end they must not only constantly hear good poetry read aloud, but they must have frequent opportunities to read it for themselves. They may well be encouraged, when circumstances are favourable, to read and learn poetry at home, and perhaps to compile and transcribe anthologies of their own. They should be given opportunities to recite the poetry they have learnt to the rest of the class who may be allowed to criticise their rendering.

The teacher should from time to time read aloud to the class poems not contained in their own books which he thinks would appeal to them. For instance, portions of Pope's "Homer" and Tennyson's "Idylls of the King," Matthew Arnold's "Sohrab and Rustum," Wordsworth's "Hartleap Well," Masefield's "Reynard the Fox," might thus be read.

Under a specially gifted teacher opportunity may arise in the highest classes for some discussion of poetic form, in the way of leading scholars to notice the most obvious and elementary differences between the language of prose and poetry and the effects produced by variations of metre. An attempt may also be made to cultivate judgment and taste, by comparing, e.g., two stanzas of one poem, or two poems on the same or similar subjects by different authors. But the pupils' liking must on no account be forced. Their taste must grow naturally, by feeding on the best. It is enough, if, as they advance, they more and more prefer the best, though they will rarely be able to show reasons for their preference.

Many teachers encourage their pupils to attempt the composition of original verse and the results often indicate real poetic feeling and some mastery of poetic form. The practice is certainly one to be encouraged. Good teaching of poetry cannot fail to stimulate the creative impulse, and in literature, as in the other arts, creative work, even though of no particular merit in itself, is of great help in developing the power of critical appreciation. More than this, such attempts may help the scholars to gain a sensitiveness to the poetic values in familiar things or, in the words of Coleridge, "the habit of wishing to discover the Good and Beautiful in all that meets and surrounds me."

19. Rapid and Careful Reading.—In the junior classes it will be advisable, as a rule, to pass over difficulties lightly. But the older scholars' enjoyment of what they read can be enhanced through intensive study. They will realise that all books cannot be read in the same way; that some lend themselves to rapid reading, while from others their essence and flavour cannot be extracted without thoughtful study of the text and perhaps of other sources of information. The literature lessons should sometimes take the form of detailed consideration, perhaps of a few lines only of poetry or prose, but the time will have been well spent if the scholars have been discovering the difference between a shallow sentimental liking and an appreciation based on understanding.

There need be no fear that the close study of a poem will destroy its beauty. The language conveys much more than the bare thought; yet unless the thought behind it is discerned the felicity of the language cannot be truly felt. When children have reached the age of caring for poetry at all, they will engage readily in the mental effort of examining the literal and poetic significance of the language of a poem.

20. Libraries and their Use.—If the habit of using books is to be duly encouraged, the provision of adequate and carefully selected school libraries is most important. The teachers should know the contents of the library and be

able to advise the scholars accordingly. Local Authorities may do much to ensure that school libraries are suitably stocked, and in country areas they may arrange for regular interchange of books between schools or groups of schools. This plan has been tried in several country districts with considerable success.

The management of the library should be as far as possible entrusted to individual scholars, appointed by the head teacher, possibly with the assistance of the scholars, as School Librarians. Catalogues should be made and kept up to date, names of borrowers and books borrowed should be duly recorded and every opportunity should be taken of training the pupils to appreciate the privileges and responsibilities of library users. They will thus acquire the library habit and be more likely to make an intelligent use of public libraries after leaving school.

In too many schools the library still consists of an ill-assorted collection of dilapidated books and such use as is made of it is quite unsystematic. Children should be taught to treat books with respect. The library books should be classified, and it may be expedient to cover them : in a Girls' or a Mixed School this can be done by the girls. They should be properly housed on suitable shelves designed for books, not hidden away in cupboards or laid on their sides so that it is difficult to read their titles or to take them out. There is no surer sign of indifference to the teaching of English than a ragged shelf-load of books with many of the volumes put in upside down, and it should become an instinctive habit with children, when replacing a book, to put it back properly in its right place.

Every effort should be made, moreover, to bring schools into close touch with free libraries, where these are easily accessible. Many public libraries already offer special facilities to Elementary School children. Teachers should be able to advise children as to the use of such libraries, and should try to learn how far they actually avail themselves of the advantages open to them. It has sometimes proved possible to arrange for school classes to do some of

their work in the reference rooms of public libraries and such a plan is admirably calculated to establish the "library habit."

Local Authorities can afford much assistance to teachers by forming libraries at convenient centres from which they can borrow books which are likely to help them in their work and in which they can see specimens of school books.

In some schools the aid of the parents has been successfully enlisted, and they have interested themselves personally in supplementing the school reading by reading at home. In this connexion the help of the National Home Reading Union will be found a fruitful means of continuing the work begun in school. The children should be encouraged, if their homes are of the better sort, to form their own reading circles with the help of friends and relatives, while in other cases the younger teachers may well serve as leaders and establish circles in the school buildings in the evenings, with the consent of the Local Education Authority or the Managers. For the purpose of these reading circles, the officers of public libraries may give great assistance, not only by supplying books recommended in the lists of the Union, but by making its plan of operations known and giving help and advice in the formation of circles.

(b) *Reading for Information.*

21. Searching in Books.—Elementary Schools have often been criticised on the ground that even in the highest classes the scholars have been almost entirely dependent on the teacher, and have too seldom been set to derive information from books by their own unaided efforts, or to use books as works of reference. But it is now increasingly recognised, especially where individual methods of teaching have been adopted, that the pupils should prepare many of their lessons, especially in such subjects as history and geography, for themselves, and that it should be one of the main objects of their teachers to help them to form the habit of learning from books.

In the upper classes children should realise that there are other ways of using books besides reading them straight

through. They should be taught to search in books for information on some specific subject and to select and arrange the essential points in a book or chapter. To do this successfully they will need considerable practice, and at first they must have some guidance from the teacher, which should, however, gradually be needed less and less. They should frequently be asked to write answers to questions which involve their searching systematically in a book or books and the questions set should not merely require the transcription of particular passages but should make some call upon their power of generalisation. They should be trained to make intelligent use of a handbook, catalogue, encyclopædia, or other work of reference, and also of an index, or a summary of contents.

However successful a teacher of literature may be in raising the standard of taste and appreciation in his pupils it can hardly be expected that the bulk of them will, after leaving school, devote much of their time to the study of literary masterpieces. But the lessons on English books will have missed their mark if the pupils leave school with no inclination for any kind of reading other than mediocre fiction or the sensational parts of the newspapers. It is desirable that they should come to think of reading not only as a means of escaping from practical life, but as a means of coping with it in all its aspects. The teacher should impress them with the immense *usefulness* of books and should introduce them betimes to books which will give them interesting information likely to bear in one way or another upon their lives. All their reading for information should not be done in school "readers" dealing with such subjects as history, geography, or elementary science, since school "readers," however well compiled, are not, as a matter of fact, the type of books with which they are likely to occupy themselves after leaving school.

School Libraries are composed, as a rule, mainly of tales, and they must, of course, contain plenty of tales if the pupils are to read as copiously as is desirable. But it need not be thought that young people are naturally indisposed to treat reading as anything more than a means of effortless

recreation. Boys and girls of 11 to 14 who happen to have contracted an interest in some of the countless features of their environment such as plants and animals, steam engines and railways, ships, motors, photography, wireless telegraphy, architecture, pictures, games, scout lore, collecting, or whatever it may be, often display a surprising amount of exact and detailed knowledge as a result of their getting hold of reading matter which has helped them in their observing and doing. Their knowledge may not be due to school at all, but to their private industry in the pursuit of their particular bent. But school may well extend a helping hand to them, even if the things they want to discover are somewhat off the beaten track of the curriculum. Much may also be done by reading aloud suitable extracts from a daily newspaper to create in children an intelligent interest in what is happening around them.

School libraries should consist less exclusively of story-books; there should also be plenty of "practical" books dealing with such subjects as those mentioned above and with crafts of various kinds. Books of reference, such as almanacs and encyclopædias should be included, and also a first-rate English dictionary. In choosing books of this kind those not designed by their authors for use as school books should be preferred.

(c) *Language Study.*

22. Language Lessons based on Reading.—If children are allowed simply to read to themselves without definite language teaching, those who are fond of reading, especially those who read at home as well as at school, will no doubt show in their oral and written exercises a steadily increasing command of English. But with the majority growth in power of thought and expression will be disappointingly small. They will read, of course, with varying degrees of attention, but many of them will be satisfied with only a vague impression of the general drift of what they read and will hastily pass over any difficulties of language or idea.

With a view to training the children in ease and accuracy in the use of language the teacher should select particular passages, as a rule in prose and preferably from a book of extracts from well-known authors. A passage so selected should not be left until the children have extracted from it, as far as they can, all that it has to give. They should understand the meaning and use of each word that it contains and construct sentences, using some of the less familiar words appropriately. They should grasp the significance of each phrase and sentence and perceive how the ideas are related. They should recognise the general idea of the whole and summarise it in their own words. They should apply to it such grammatical knowledge as they possess, analysing it if they can into its component clauses. Finally, the whole passage should be read aloud distinctly by some of the pupils with all the rightness of phrasing, pronunciation and intonation of which they were capable.

Practice of this kind is of the greatest importance but it is at present far too uncommon. In the hands of a skilful teacher it plays the same invaluable part as an exercise in translation from a foreign language for the scholars of a Secondary School. At first progress will be slow and a few sentences may occupy a whole lesson. But the value of the work will depend on its quality rather than on its quantity. The selection by a child of the right explanation of a phrase, whether the explanation is suggested by the context or requires recourse to the dictionary, demands from him close attention and thought. By the attempt to substitute one word or phrase for another, and by the teacher's criticism of his attempt, he can gain some elementary conception of what is meant by precision in language ; of the care, on the one hand, with which a great writer uses words, and, on the other, of the vagueness of thought and disregard of shades of meaning which mark ordinary language as used by himself and others. Very careful preparation by the teacher is essential if exercises of this type are to be fully successful.

In addition to the comprehensive exercise just described, the teacher should constantly be devising various linguistic exercises on portions of the text, to be worked by groups of

scholars or the class as a whole, orally or in writing. Such exercises should involve the scrutiny of the vocabulary, form and structure of particular passages, and their object should be to render language a familiar medium, easily manipulated. It is good oral practice to conjure as it were with the verbal materials of a piece of English ; varying the subject and object ; converting short sentences into long, subordinate into principal, concrete into abstract, active into passive, direct speech into indirect and vice versa ; or replacing particular words and phrases by others. For all such language experiments the material should be found in the books the children are reading rather than specially composed or taken from manuals of English. The children will thus learn while still at school to rely for progress in English on the only means which will be open to them afterwards, viz., the observation and assimilation of the language and style of what they read.

23. Grammar.—The intelligent study of language will necessarily involve some teaching of grammar. When children have acquired a reasonable command of language they will realise that it is not an incoherent assortment of words but that different words perform different functions and are related to each other in a variety of ways. The aim of the teaching of grammar is to explain to them these functions and relations.

The different parts of speech and their functions in the sentence should gradually be taught, and the children should have practice in recognising them. They will be able to perceive that every sentence has a structure and will appreciate the meaning of such terms as subject, predicate, object, complement. Later they should be taught to analyse the complex sentence and to distinguish the different types of phrase and subordinate clause according to the parts of speech which they represent. They will also perceive that variation in the function and meaning of certain words is accompanied by variation in their form, and they should then learn certain facts of English Accidence and certain rules of Syntax, coming to understand what is meant, e.g., by concords, inflexions, moods, tenses, etc.

Many other grammatical terms will prove necessary, as the scholars, through studying the behaviour of words in actual use, discover additional points of significance in their form, use, meaning and relations. When once an idea has been clearly grasped there is no reason why the teacher should hesitate to supply and employ the appropriate grammatical term. Such terms as "active" and "passive," "transitive" and "intransitive," "participle," "impersonal," "antecedent," "apposition," "auxiliary," and the names of the cases, moods and voices cannot be dispensed with if the study of language is to correspond with the capacity of intelligent scholars.

The teacher should be careful to preserve a sense of proportion. He should avoid obsolete and burdensome pedantries, such as detailed parsing on the lines of Latin Grammar, the multiplication of arbitrary rules and the teaching of subtleties and niceties that are beyond his pupils' comprehension or of no practical use to them. Nor should he forget that grammar was made for language, not language for grammar. English is full of idioms which can only be explained by a knowledge of historical grammar, if, indeed, they can be explained at all. A bright scholar may ask questions about such expressions as "She danced herself tired," "I, for one, agree," "He works no more than he can help," "this mind of ours," etc., but in the Elementary School the teacher can scarcely do more than pronounce them to be English idioms. The grammar taught should deal with the normal rather than the abnormal, and by showing the children that language is rational should help them to use it with accuracy and confidence.

THE WRITING OF ENGLISH.

(i) THE JUNIOR STAGE.

24. **Early Work.**—The removal of a child at the age of about seven years from the Infants' to a higher Department should not involve a break with the methods previously used for instruction in English. Composition, i.e., the expression of ideas in connected and continuous form, will have been practised in the Infants' School through oral

methods, and by this means many children achieve at an early age a capacity for narrating stories or giving descriptions fluently and attractively. So soon as a child has learnt to write, exercises in written composition become possible for him. Most children find pleasure in employing their new accomplishment in setting down on paper whatever may be in their minds, but it need not be supposed that these primitive attempts are likely to contribute much towards their improvement in composition, any more than strumming on the piano is likely to help them to become skilled performers. Written composition is generally begun too soon and practised too often. Until a child can write with ease and speed the mere mechanical difficulties of writing will act as a drag on his power of self-expression and at the same time he will probably be injuring his handwriting. It is better for the combining of the two arts, handwriting and composition, to be postponed until by means of such exercises as transcription and dictation the child has learnt to write a well-formed hand at a good speed and has also by means of regular oral exercises become able to express himself fluently.

During this Junior Stage, therefore, i.e., up to about the age of eleven years, the main emphasis needs to be laid upon the importance of maintaining the oral practice. Every lesson should still afford opportunity for free expression and for developing the power of connected and continuous speech. As the child grows older he should be expected, in giving an account of anything he has seen, heard or learnt, to speak for a longer time than is usual in an Infants' class. He should be trained to weave his narrative into a more definitely connected whole by the use of subordinate clauses instead of joining every sentence with "and"—the construction natural to very young children. The best way to secure improvement is to encourage the children to give a full and connected account of what they have read or been told, and to avoid conducting the recapitulation or revision of reading or other lessons by a series of questions requiring merely a word or clause in reply.

It is no doubt difficult, especially in urban schools, owing to the size of classes, to give each child sufficient practice in continuous oral statement. But if the teacher will take advantage of the countless opportunities for the practice of speech that arise, much more can be done than is sometimes supposed. Particular scholars who can speak well enough to command the attention of the whole class for some time may occasionally narrate a whole story, or a particular episode; describe a scene, an experience, a process, a concrete thing, etc.; or speak on any suitable subject of their own selection. When any book is being read by a class or group working together the children should often be called upon, at the conclusion of a paragraph or chapter, to state what they have gathered from it and comments, criticisms and supplementary statements by other members of the class should follow. The children's dramatic instinct should be fully utilised. Those who are slower at expressing themselves orally should have practice in small groups, while the rest of the class are otherwise employed. Individual methods are of great value in the teaching of English and the now common practice of the teachers' attending to a few members of a class at a time instead of always taking the class as a whole undoubtedly results in the time being more profitably used by all.

Oral practice of this kind may come indifferently under the heading of conversation, reading or composition; it will be valuable as a means of training the children alike in understanding English and in self-expression.

25. Short Exercises Preferable at first.—When written composition comes to be undertaken its main purpose should be that of disciplining fluency into form. Complete compositions should at the outset be sparingly required, and should be interspersed with plenty of other written exercises of a less ambitious kind, designed to give practice in choice of words, punctuation, paragraphing, summarising, interpretation, etc. The subjects should be chosen with care. They should be drawn from the same sphere as those for the oral exercises, and it is essential that the child should possess a fairly complete stock of ideas about them

before he begins to compose. When written composition first appeared in the Elementary School programme it generally took the form of reproduction by the children of a short passage which they had listened to or studied till they had practically got it by heart. In the reaction which followed, "original" work was demanded from children at all stages. But original composition, in any real sense of the word, should not be required of these younger children except by way of an occasional experiment. Before they can be expected to find the ideas and also the language for their written composition exercises they should be given subjects in which the ideas, and as a rule the language too, are more or less ready to their hand so that their task is mainly one of arrangement and selection, in itself a very difficult task for younger children. In the earlier stages it is useful to give children practice in the answering of specific questions arising out of what they have been reading.

The teaching of composition needs to be carefully graded and it is failure to recognise this that is the commonest cause of disappointing results. A piece of writing which entirely lacks arrangement and selection is, as a piece of writing, entirely worthless and not worth doing. Yet arrangement and selection involve the exercise of reflection and judgment, qualities which are of slow growth in children; there is therefore a danger that they may sometimes be required to attempt composition exercises which are beyond their powers. Their productions will then be scrappy and feeble, and they, and possibly the teacher as well, may tend to acquiesce indefinitely in a low standard, and to think of the spelling and handwriting as the chief criteria of a composition. Just as the traditional reading lesson should disappear, so also should the traditional composition lesson. In such a lesson the teacher announces a subject at random, the children write a composition of a prescribed length within a prescribed time, and the teacher then corrects actual errors and possibly directs that certain words and sentences shall be rewritten, but does not follow up the children's performance with really constructive help and

guidance. The mere writing of one composition after another will leave the children very much where they were unless the teacher has an enlightened idea of the kind of improvement that is wanted and can lead the children to realise and respond to it. He should discuss the written exercises orally with the members of the class and should watch carefully to see how far their reading and other training in English are being reflected in the method of treatment, vocabulary, style and substance of their written work.

26. Spelling.—Children who do plenty of reading can generally spell creditably before they leave school. But the natural aptitude for spelling varies very much in different children and for some of them direct instruction in spelling may be found necessary. Many schools reserve twenty minutes or half an hour weekly for specific spelling lessons.

A certain amount of spelling drill is probably necessary in the Junior Stage. But such drill should be, as far as possible, individual. It is a waste of time to keep calling on good spellers to spell words over which they are not liable to make mistakes. The teacher's task is to devise means for helping each child to deal with his own peculiar difficulties, and the best guide in selecting the words which he should be taught to spell correctly is to be found in his own written exercises. It is a good plan to require him to keep a personal list of words which he has misspelt and to learn them so thoroughly that he will be able to get them right automatically in his composition exercises. Such words will naturally be of very common occurrence in any book and when writing children should turn to the reading book or dictionary, or if necessary consult the teacher, when they are in doubt about the spelling of a word. They should reduce their spelling mistakes to the lowest limit possible by verifying the spelling of the words they use, and also by reading their compositions carefully through and correcting careless mistakes, before showing them up. A large number of spelling mistakes are due more to carelessness than ignorance ; and occur in common and simple words, partly because such words are often badly pronounced.

The more closely spelling is connected with composition, and composition with reading, the more effectively will children be taught to spell. Opportunities for incidental teaching will constantly occur and a good teacher will have no difficulty in making this apparently incidental teaching genuinely systematic, while he avoids the dangers of the boredom and inattention produced by the old formal lesson in spelling in which difficult and isolated words, more or less arbitrarily chosen, were learnt from the black-board or a spelling manual. It cannot be emphasised too strongly that to spend time in early years on the spelling of words which the child will not use, if at all, for some years to come, is wasted labour. Nor should teachers be unduly concerned if children of 10 or 11 years of age appear weak in spelling. If they are encouraged to read widely their spelling may improve rapidly towards the end of their period of schooling.

The practice of oral spelling of words apart from the written or printed symbol is of doubtful value, inasmuch as with most children the eye plays a more important part than the ear in the process of learning to spell. It is a good plan for the children occasionally to make a special study of the spelling of the words in a page or chapter which is to form the basis of an exercise in composition, so that they may train themselves to retain mental pictures of words and be able to visualise them readily.

Dictation may be a convenient method of testing spelling, but it is of little value for teaching it. It may, however, serve as a means of familiarising children with passages of literary merit, and may also afford a valuable training in listening attentively and accurately. It should be given out, not word by word, but in phrases. Words should not be repeated, and the children should be gradually trained to judge for themselves, from the general sense of the passage, the proper places, first for the insertion of full stops and later, for the insertion of other punctuation marks.

(ii) THE SENIOR STAGE.

27. **Choice of Subject.**—The oral work which should form the basis of the teaching of composition throughout the

Junior Stage should by no means be discontinued with the older pupils. On the contrary, it should be elaborated in various ways ; e.g., by means of debates or brief lectures by the pupils themselves. These should be a natural development of classroom work ; the children should talk about matters which form part of their own observation and experience and the retailing of second-hand opinions should on no account be encouraged. In all lessons, not only in those specifically devoted to English, full and correctly expressed answers to questions should be expected. Time is not wasted in requiring a child to repeat in clear language an answer which he has at first given in a halting and confused form. But as the pupil passes through the Senior Stage attention should be increasingly focussed on the difficult exercise of written composition for which a variety of written and oral exercises have gradually been preparing him.

The choice of subjects for composition is a much more difficult and important task than is commonly supposed. It should never be made casually or without reference to a thoughtfully planned course of practice in writing. The subject should be within the children's powers, but they should be required to exercise those powers to the full. They should be allowed to continue working at a particular exercise until they have produced the best of which they are capable. If a child is specially interested in a particular subject he may well be allowed to write an " extended " composition exercise in several chapters upon it. All the members of a class should not be expected to be working at the same exercise at the same time.

Teachers of composition are sometimes inclined to ask for too much and at the same time to accept too little. Thus, to direct a class to write a composition upon " Canada," " Football," or " Spring," is to make a demand upon their power of arrangement and selection of material which they cannot satisfy and which impedes all freedom of expression.

Similarly, a child should not be expected to write a single composition upon a whole book or story, e.g., on

“ Robinson Crusoe ” ; it will be found far more profitable to call for a description of some particular scene or incident which is specially interesting, or even to frame two or three pointed questions on some portion of the book ; e.g., “ What were the difficulties which Crusoe found in building his boat, and by what means did he overcome them ? ” If the subject is restricted in scope and the issue is clear, the scholar knows what he has got to do and the teacher can show him how far he has succeeded. But teachers who set vague and general subjects must perforce accept from their pupils meagre and ill-proportioned work and that most fatal obstacle to progress, unconscious acquiescence in a low standard, will tend to become confirmed in both teachers and pupils. If a scholar is capable of surveying a wide subject and himself selecting a particular aspect of it for treatment, he should, no doubt, be given opportunities for doing so, but such a task calls for more mature power of thought than can ordinarily be expected in Elementary School pupils.

28. Exercises in Description.—Practice in descriptive writing is of the first importance. What the child most needs is power to describe in his own words his own experiences, the sights and sounds, the thoughts and feelings of everyday life. “ Description,” says Stevenson, in recounting how he learnt to write, “ was the principal field of my exercise ; for to anyone with senses there is always something worth describing, and town and country are but one continuous subject.” The ever-changing face of Nature, the sky, the winds, snow, rain, frost, the thunderstorm, the fog, and the sunshine, trees, flowers, birds and beasts ; familiar scenes, the farmyard, the village street, the market place, the harvest, the railway, the tramcar, the factory, the post office, the fire-engine, shops, churches, all the scenes of human activity amongst which children’s daily lives are passed—these form an inexhaustible store from which materials for description can be drawn.

Similarly, the scholar may be taught, e.g., to give an exact and detailed account of occurrences which he has

himself observed, such as a procession in the streets or an experiment in school ; to write an accurate description of someone he knows or of something belonging to himself which is supposed to be lost ; or to state his qualifications for a post for which he is supposed to be applying.

Moreover, under a good teacher, exercises in description may form an admirable means of exercising a child's imagination. He may be set to describe the same scene under two aspects, e.g., in summer and in winter : after telling a story or an historical incident from the point of view of an onlooker, he may be asked to retell it from the point of view of one of the actors in it.

Class-teaching lends itself especially well to work of this kind. If the subject, for instance, chosen for the day's practice be " a harvest scene," some children can be made to write their description from the point of view of the farmer, others from that of the labourers, each of whom has his particular part to play in the process ; others, again, can describe the whole scene as it appears to a passer-by. Afterwards, specimens of these exercises can be read aloud, and each group will learn something from the others' attempts, as well as from its own. A good deal, also, is done by methods such as these to mitigate the monotony of revision —no small gain to the teacher of a large class.

So, too, in writing a letter, the child should be taught to vary its form according to the person to whom it is addressed and the subject-matter with which it deals. For instance, a letter will be written to a friend in a style which would be quite out of place in addressing an employer when applying for a post.

One caution should be added. The subjects and occasions on which letters are written in school should always be such as will occur in real life. To compel a child to throw a composition on such subjects as " The Choice of Clothing," or " the River St. Lawrence," into the form of a letter to his teacher, is to render the exercise ridiculous. Practice in letter-writing will naturally include instruction in the addressing of envelopes legibly and correctly.

Nor should the teacher forget that by developing the imaginative powers of the children through the judicious use of exercises of this type he is teaching them to put themselves in other people's places, to realise that there are more sides than one to every question, and that by so doing he is laying the foundations in their minds of sympathy, toleration and honest judgment.

29. Other Types of Subjects.—The attitude of children to their surroundings is imaginative rather than scientific. They appreciate and readily imitate writers, such as Lamb, whose descriptions are coloured by their own personality, and when they have become interested in poetry their writing often displays poetical qualities. It is most desirable to exercise and quicken the genuine imaginative power in children during the period when it is naturally vigorous and fresh and while the common things of life still possess for them a romantic significance. But the term "imaginative composition" has in recent years generally been used to signify not descriptions of reality which are alive with imagination, but exercises in invention, such as fairy tales or imaginary autobiographies, which illustrate merely the unrestrained play of the fancy and the love of make-believe. Such exercises are very useful when fluency still needs to be acquired, but after that stage is reached their value is not great. They are at present very popular owing to the originality which they are supposed to show and the facility with which children produce them. But their merits are apt to be overrated. It should be remembered that an exercise which allows unrestricted freedom to the fancy is an easy matter compared with one which calls for a close correspondence with actualities. Fluency and fertility of invention are unfortunately not incompatible with serious inability to write a statement or description demanding accuracy, clearness of arrangement, sense of proportion and right choice of words.

What may be called reflective subjects, e.g., the meaning and application of a proverb, the advantages and disadvantages of this or that, or abstract ideas such as "Courage" or "Patriotism," were at one time frequently set but are not

now in favour. They are certainly not suitable for young children, but there is no reason why they should be ruled out altogether for older scholars who have formed certain impressions on such subjects and for whom the writing of a composition may help to clarify what they have only vaguely apprehended.

Dramatic composition should not be omitted. A group of children may sometimes be commissioned to dramatise a story or an historical episode. Individual children may, of course, often attempt subjects which the teacher feels it would be injudicious to set to the class as a whole.

30. The Use of Models.—If composition is well taught, the scholars' vocabulary should show steady development. Vocabulary cannot be built up by the deliberate collection of isolated words, but language study of the kind recommended in Section 22 should help the children to add continually to their store of words and phrases. The careful study of good models is essential as a discipline in the craftsmanship of English. The keen teacher may with advantage plan a course in which the study of extracts from well-written books available in the school is alternated with the writing of composition exercises on kindred subjects. Both the extracts and the subjects should be most carefully chosen with reference to each other. In view of the amount of reading done by most children before they reach the higher classes, its influence on their work in composition is sometimes surprisingly small. This is due to their never having realised that there should be a close connexion between the two. The passages chosen should not be altogether beyond the scholar's range. He cannot be expected after reading an essay by some famous writer forthwith to produce something similar. But from his class-book of literary extracts, from his form, or school, library, or from other sources the skill of his teacher can provide him with an ample selection of suitably graded models.

The teacher of composition should also himself, from time to time, write a model exercise in order to set the scholar as proper standard. This model he should carefully analyse,

explaining the idea underlying the scheme of arrangement and why particular words are chosen in preference to others. The scholars should sometimes analyse and write out the scheme of arrangement in a model studied: this should help them to make schemes of their own. The occasional writing of essays simply of reproductive type will also help them to absorb the qualities of the original. It is also worth while sometimes to consider models which should *not* be imitated. Examples of inadequate, or exaggerated, or insincere writing should be discussed and pilloried.

31. Correction.—There remains the difficult question of correction, as to which it is inadvisable for the teacher to lay down hard and fast rules for himself. Ideally, the best plan is to go through each exercise with the child who wrote it, explaining and discussing every mistake that has been made. But in many schools classes are, unfortunately, still so large that this method is quite impracticable. The teacher will vary his methods to meet the conditions under which his work is done.

Mistakes made by several children in common can be dealt with collectively. At times a whole lesson may well be spent in hearing pieces of composition read aloud by their authors, and in making and inviting oral comments. Not only are many mistakes detected by the ear which would escape notice by the eye, but important principles as to the build and balance of sentences, variety or monotony of diction, and the use of punctuation, are easily and effectively illustrated.

The essential point, however, is that the child should understand what is wrong and know how to correct it. This can never be secured if the teacher's revision goes no further than merely marking every mistake, without regard to its relative importance, and handing the exercise back to the child without comment. For example, the distinction between blunders in syntax and blunders in spelling should always be borne in mind. If a boy writes "their" for "there," it is useless to hope that he will be led to grasp the point of his mistake by being made to write out either or both of these words a certain number of times at the end of

his exercise. The boy, on the other hand, who writes "recieve" for "receive," does so either from carelessness or from defective visualisation, and his cure may well be helped by writing the word correctly a given number of times.

It is important that the correction of particular errors should not absorb too large a proportion of the time which the teacher is able to devote to the teaching of composition. The pursuit of merit rather than the avoidance of faults should be the idea impressed upon the pupils. A composition may be free from definite mistakes but so feeble in ideas and meagre in vocabulary as to be essentially worthless. The teacher's criticism should have regard to the quality of the composition considered as a whole, and should indicate to the scholars how they may avail themselves more fully of the resources which they possess. He should compare their writing with the models they have been studying and foster in them the realisation of the qualities which he desires to see them exhibit. Fullness, relevance, and accuracy of subject-matter as well as the intelligence with which it is treated, the arrangement of ideas, and the style of expression, should all be taken into account.

CHAPTER III.

HISTORY.

SUMMARY OF CONTENTS.

I. GENERAL CONSIDERATIONS.

Section.

1. **History as a School Subject.**—Scope limited by the children's powers of comprehension. The course should give a sense of continuity. Syllabuses should vary with the circumstances of the school.
2. **The Teacher's Reading.**—It should include some of the great standard histories and of modern historical works embodying the results of recent research, but the main inspiration is to be sought in literature of the period. Children should hear first-hand accounts as well as graphic descriptions of great events.
3. **The Provision of Books.**—Suggestions for teachers' libraries. Use of the Public Library. The choice of text-books.

II. JUNIOR CLASSES.

4. **The Approach to History through Stories.**—Stories to be drawn from the whole range of history. The romantic element should predominate. The grouping of stories: a chronological grouping probably best.
5. **Methods of maintaining Interest.**—An active part to be taken by the children. They should make models, drawings and charts. Dramatisation within bounds valuable. The traditional form of reading lesson deadens interest.
6. **Aim of this Early Work.**—To give points of interest in historical sequence as a basis for later work.

III. SENIOR CLASSES.

Section.

(a) SUBJECT MATTER.

7. **The Selection of Subject Matter.**—Vastness of the field. A great mistake to attempt too much. The purpose of selection to give the right point of view and to encourage later reading and study. The important questions are, "What cannot I leave out?" and then "What can I leave out?" An outline narrative does not appeal to children. Selected topics must be of historical value and naturally intelligible to the pupils. Social and local history interest children, but are best taught as illustrating the national story.
8. **What should be Known by the End of the Course.**—The story in connected and definite outline of Britain and the British Commonwealth of Nations. Many schools will have to be content with less. The course should always be continued to modern times. The teacher must see the story in right relation to the history of the world. Without this the history of the British Dominions is not intelligible.
9. **English History a Part of World History.**—Some knowledge of ancient history desirable. This sometimes based on the Bible story, sometimes on biographical studies of outstanding figures of ancient history, followed by the ordinary course of British history, with some explanation of the outstanding movements of general history.
10. **The League of Nations.**—International co-operation.
11. **The Connexion of History with Geography.**—The influence of geographical factors on history. History adds interest to geography. The use of the atlas and sketch maps.
12. **Illustrations of the Foregoing Principles.**—
 - (a) Ancient History.
 - (b) Early British History: suggested topics. Few names need be memorised. The use and evidence of the map.
 - (c) The Middle Ages: suggested topics. Street names. Decisive battles.
 - (d) The Sixteenth Century: The navigators. The Renaissance and Reformation.
 - (e) The Seventeenth Century: The Civil War and local history. Beginnings of the British Empire.
 - (f) Recent Times: Controversial topics to be avoided. Different ways of treatment. Attention to be concentrated on the broadest and simplest aspects. Many existing institutions have their roots in the past.

Section. (b) GENERAL METHODS.

13. Specialisation.—Its advantages.
14. The Arrangement of the Syllabus.—“Concentric” and “periodic” plans. A “period” should be treated as a part of a whole. Regular revision throughout the course essential. A general revision by gathering up the threads of the story desirable.
15. The Necessity of Private Study by the Pupil.—Oral teaching to be supplemented by private study.
16. Oral and Written Questions. Note-Making.—Training in note-making necessary. The comparison of different accounts of the same episode.
17. Chronology.—The importance of a framework of dates. The time-chart. The dates of reigns provide a useful framework.
18. The Use of Illustration.—Contemporary pictures indispensable. The story of music and song.
19. The Use of Historical Fiction.—Every encouragement should be given to the reading of good historical fiction. The school library.
20. Conclusion.—History an instrument of moral training. How nations and individuals earn the gratitude of posterity. The splendour of heroism and worth of unselfishness and loyalty. The meanness of cruelty and cowardice.

I. GENERAL CONSIDERATIONS.

1. History as a School Subject.—History is the story of the doings of grown men and women, and of the society in which they lived, and this story has to be told to children mostly under the age of 14. It follows that the teacher must deal principally with what children can understand; with personal character and prowess, adventure, discovery, invention, and with the way in which men have lived and worked; but with statutes only so far as their purport and meaning can be made plain to a child; and with political or religious conflict only so far as its main issues and results are necessary for an elementary understanding of great changes in national life and of the rights and duties of a citizen of to-day. It has always to be borne in

mind that history is a continuous narrative of events bound together as cause and effect, and that the teaching must develop in the child's mind a sense of this continuity.

Schools, moreover, vary widely in their circumstances. In those which draw their pupils from homes where reading is encouraged, where travelling is not unknown, and conditions are generally favourable, a more extended treatment of the subject will be possible than in others which enjoy fewer advantages ; and the suggestions which follow are intended to apply to ordinary rather than to exceptional cases. But they recommend no definite course for adoption, and the history syllabus, even for schools in similar circumstances, may properly vary according to the capacity and interests of the teacher. It is undesirable that all schools in any particular locality should follow precisely the same syllabus. Each teacher should think out and frame his own scheme, having regard to the circumstances of his school, its rural or urban environment, its staffing and classification, and in some measure also to the books and the topics which most appeal to him.

2. The Teacher's Reading.—In history, perhaps more than in most studies, the teacher's own reading and his power to make judicious use of it are of the first importance. It is not always easy for teachers, in the country especially, to obtain the books of reference which are necessary for their purpose. For this reason, amongst others, the teaching sometimes displays insufficient breadth of knowledge and therefore insufficient power of selecting such facts as give vividness and reality to the story. The study of some of the great standard histories (e.g., Green, Froude, Macaulay, Lecky) and of the best modern historical works (e.g., Maitland), which embody the results of recent researches, will strengthen the teacher's insight into the meaning of great movements, and enrich his store of stirring detail.

It is, however, in the vast store-house of English literature that every teacher of history will always find his main source of inspiration. History and literature are in reality one and indivisible, for the literature of any period is the expression of the life and thought of that period. Literature

not only illumines what is often obscure, but corrects the false impression, and modifies the harsh conclusion of the text-book. Literature, in a word, creates the atmosphere. Readings from Chaucer and *Piers Plowman*, for example, are almost indispensable for a true appreciation of life in the Middle Ages; Spenser and Shakespeare light up the Elizabethan period; Herbert, Milton, and Bunyan the Commonwealth; Addison the age of Anne; Burke and Cobbett various aspects of the 18th and early 19th Centuries.

Without the inspiration which the best literature alone can give, no teacher, however well informed or interested he may be in his subject, can hope from day to day and year to year to clothe the dry bones of history with flesh and blood, or to inspire his class with a sense of reality and life.

To give this sense of reality, it is most desirable that children should on occasion hear or read a story as it was told first-hand, especially when the writers are also excellent story-tellers. Cheap reprints now render this possible, and it would be easy for children to learn from Froissart how the English prepared for Poitiers, or from Hakluyt how the survivors saw Sir Humphrey Gilbert die, or from Raleigh how the "Revenge" fought, or from Pepys how he heard the Dutch guns in the Medway. Or children may read, or have read to them by the teacher, such graphic descriptions as Defoe's account of the burning of St. Paul's, or Macaulay's story of the siege of Londonderry, which, though not first-hand in themselves, are remarkable for their vividness and other literary qualities.

3. The Provision of Books.—Many teachers with a special interest in history will naturally wish to get together little libraries of their own. Where, however, teachers find a difficulty in obtaining suitable books, it would be well, where possible, to provide for each school, or for a group of schools, a collection of good histories of different periods, monographs, biographies, etc., which would together cover the ground. And if even only one such book were read by the teacher in the course of each term, his teaching of history would be improved.

Such books can, it is true, be found in the Public Libraries of most towns ; but they cannot always be taken out, nor can they always be kept for a sufficient length of time. In some of the country areas a circulating library of books on history for the use of teachers, with a short annotated catalogue, has been established by the Local Authority.

The Public Libraries offer facilities for children also. In many of them an arrangement has been made by which the children in the senior classes of the school have tickets entitling them to borrow a book. A list of suitable books is made by the teacher, and thus a kind of circulating library is started in school, which in course of time is replaced by another. These matters all deserve the particular attention of head teachers and Local Authorities.*

As history offers exceptional opportunities for independent study on the part of children, the selection of a good text-book is of great importance. The best students' histories are too difficult for children, yet no book should be chosen for the senior classes which does not represent good historical scholarship. Technical phraseology should be avoided, and the language, without being childish, should be sufficiently simple and vivid to be followed by young pupils with interest. The matter should be historically sound, the descriptions of important persons and events reasonably full ; and the narrative, though brief, so presented as to impress the reader with a sense of its continuity.

II. JUNIOR CLASSES.

4. **The Approach through Stories.**—In the teaching of history up to the stage reached by the average child of eleven, there is no occasion to differentiate fundamentally between Elementary and Secondary Schools. In the junior classes, the appeal to the child's imagination, which in all teaching of history plays so great a part, will be of primary

* In some of the London Boroughs a room with ready access to books is set apart in the Public Library for the use of classes of children during school hours ; in other Boroughs small collections of books of reference are lent to individual schools for short periods.

importance ; simple attractive stories should form the substance of the instruction. These stories need not be confined to any one country or to any one age. They should be so arranged as to introduce the child to a gallery of striking pictures drawn from the whole range of history. In addition to stories from the history of the British Isles, the course might well include some stories of the Bible lands, of the Siege of Troy, of Leonidas, Socrates, and Alexander, Horatius and Hannibal, Roland and Charlemagne, Dante and Giotto, St. Louis, St. Francis of Assisi, Joan of Arc, William Tell, Columbus, Cartier and Cortez, as well as similarly outstanding characters of more modern times.

There are now plenty of good books with stories of the Tale of Troy and the Odyssey ; stories from Herodotus, Plutarch and Froissart ; from the Sagas, the Arthurian cycle, the Arabian Nights, and so on, and whether the story lesson is labelled " Literature " or " History " is immaterial. The younger the children, the stronger should be the romantic element in the narrative ; and during the earlier years it may not be advisable, necessarily, even if it were possible, to distinguish between legend and history. There is also force in the contention that to the child's mind it is the older part of the story which is the least complex and the most tinged with romance ; the child can feel a deeper and a more personal interest in the story of Leonidas at Thermopylæ, of Regulus returning to captivity at Carthage, of William falling as he landed at Pevensey, and in the doings of Marco Polo and of Joan of Arc, than in the incidents of more recent centuries.

Each teacher will, no doubt, arrange his own scheme of stories largely according to his taste and the books at his disposal. There may be much advantage in the classification of stories according to their character and content ; even at the outset it is wise to take them in such groups as will give them a certain unity of tone and colour. These groups might illustrate certain great ideas or types of character, or might be based on place or nationality, though a chronological grouping is probably best. But it is essential that the work should be so planned, and

so carried out in practice, as to give the child's imagination free scope, to let it receive unawares vivid impressions of other ages in which manners and ideas and environment were very different while human nature was nevertheless the same; in other words, to awaken in a rudimentary form that sympathy with the past which is the necessary foundation of the historical sense.

5. Methods of maintaining Interest.—The stories can be told to the children, and it is also an excellent though much neglected practice to read aloud to them well-written tales. In any case, the children themselves should take an active part in the lesson, and not be merely passive listeners. Thus they should be encouraged to ask questions; it is a useful practice, if not carried to excess, to let them re-tell the stories which they have heard; and when once the initial difficulties of composition have been overcome, they should attempt to write down their impressions of some simple scene or incident chosen from the narrative. When they can read with sufficient ease, they should often be set to read the story in the book by themselves, preferably before the lesson is given.

Full scope should be given to the constructive and expressive powers of the children in making models, drawing pictures and picture-charts, or acting scenes from the lives of which they have heard or read.

There are schools in which history at this stage is made more vivid and picturesque by the dramatisation of suitable scenes. The younger children act their history stories just as infants act fairy tales. With the help of suitable books, of pictures and contemporary illustrations showing armour and dress, the pupils may sometimes co-operate with the teacher in arranging their own parts. They may thus learn something of the life and colour, speech and habits of the periods from which the scenes are taken. Experience, however, shows that the indiscriminate use of this method, without careful choice of subjects and adequate preparation by teacher and children, may do more harm than good.

Nothing could be better calculated to deaden the interest of the child than the type of lesson still too frequently

heard, in which the children read aloud in turn from the class "reader" and the teacher follows with a running commentary.

6. **Aim of this Early Work.**—The work in these early years is of great importance, and it should give points of interest round which the more serious history teaching of later years will crystallise. If the course is well arranged, the pupil by the age of 11 or 12 should have gained some acquaintance with the outstanding figures of history in their chronological succession.

III. SENIOR CLASSES.

(a) SUBJECT MATTER.

7. **The Selection of Subject Matter.**—In the junior classes the pupil's interest in history will have been stimulated by clear pictures of outstanding personalities and events. He has now come to an age when he can begin to study history as a connected story through which there runs a binding thread of growth and development which it will be his business to discover and follow.

The field, however, is so vast, and the years of schooling after the age of 11-12 are so few, and the time that can be given in schools is so small, that it is impossible to hope to do more than lay the foundations of, and awaken a desire for a further study which may be carried on throughout life. There can be no greater mistake than to attempt so wide a survey that it compels hurry to cover it in the time available, and leaves no time for anything but lists of names and events and generalisations for which the basis has to be taken largely for granted. It is of far more value to give the pupil some idea of the right spirit in which he may approach the study of history in later life than to burden his memory with details which can have little or no significance for him. If the subject is made so attractive that the pupil is constantly asking himself "What comes next?" and if when his school days are over he continues to read and study history, the teacher has achieved his purpose. One of the main

causes why this purpose is too seldom achieved is the overloading of the syllabus and of the lesson in the attempt to make them complete and exhaustive rather than selective. Much that appears—and rightly appears—in the ordinary textbooks and is known to the adult student of history, is beyond the reach of children. It is forgotten that in the selection of personalities and events for study by his pupils, the important question for the teacher is “What are the essential incidents and personalities and the details associated with them that I cannot leave out?” and for the rest not “How much can I put in?” but “How much can I leave out?” It must be frankly recognised that a good deal must be sacrificed, even of what may fairly be regarded as important and attractive to older students.

Without limitation of topics to those which are of primary importance and interest to children, it is impossible to secure emphasis when emphasis is needed or to find room for the detail necessary to create reasonably clear ideas and pictures. Children need the picturesque element which appeals to the imagination and gives life and reality to persons and events. Whatever helps them to believe in the story and to see the actors in it as real men and women, is of value. Thus the personal appearance of great men, their characteristic action and bearing at decisive moments, their recorded sayings, are all details; yet in numerous cases they have stamped themselves on the popular imagination, and no wise teacher will omit them in a course of history for the young.

The teacher's guiding principle will, therefore, be that the selected topic should be both of historical value and easily and naturally intelligible to the pupils. A bare outline narrative does not appeal to immature pupils. But children like to hear or read about the lives of great men and women. They can take the keenest interest in Archimedes and Cæsar, in the heroes of Agincourt, in Drake and Raleigh, in Wolfe and Montcalm, and can appreciate much of what Alfred or Edward I, Chatham or Clive, Blake or Nelson, Champlain or Cook, Wilberforce or Lincoln, Harvey or Lister or Pasteur achieved in their different ways. But

they need not—indeed should not—be harassed with the details of the divorce of Henry VIII, or with the intrigues of Charles II's reign, or with the conflicts of political parties in the 18th century.

Both social and local history, again, have a natural interest for children. Their curiosity is easily aroused by the story of changes in such matters of daily concern as houses and dress, food and means of transport, and they may be led on from this to some consideration of some difficult matters, such as changes in the condition of agriculture and trade, industry and war. Again, every child should know something of the history of his own village, town or county, and local history will often supply excellent examples of changes in the mode and character of life at different epochs. Visits, too, where these are possible, to the actual scene of historic events or to the actual remains of times which have passed away are of great value in creating atmosphere and in making history live. But care must be taken lest the line of approach through social or local history tends to obliterate the great land-marks in history, or to over-emphasise economic in relation to political development. Local history is, perhaps better taught, not as a separate course, but by constant reference to the history of the locality as illustrations of the national story*.

8. What should be Known by the End of the Course.—By the time the pupil leaves the Elementary School he should have gained a connected and definite knowledge of the story of Britain and of the British Commonwealth of Nations, and have begun to realise the bearing of this story on everyday life, observing as he proceeds how the political, social and industrial life of to-day, and even the physical aspect of Britain, are the result of very gradual change which can be traced through many centuries. Better still, if he has also gained as his study progresses, some knowledge of the

* For further suggestions on Local History, see the Board's Circular 599, "Teaching of History in Secondary Schools," pars. 7-8. Also "How to compile a History and Present-Day Record of Village Life," by Joan Wake, price 1s., from the Secretary, County Federation of Women's Institutes, 3, The Parade, Northampton.

growth of free institutions at home and overseas, and some idea of the place of the British story in the story of the world.

This is the ideal, but it is recognised that to attain it fully may be beyond the reach of many schools. The variations in plan necessary in the case of children of less capacity or poorer opportunities must be left to the judgment of the teacher, and it is fully recognised that, for such children and in schools where conditions are difficult, a less extended but well-considered treatment of the subject may be all that is possible.

In any case the course should always be continued to modern times. In small schools where classes are grouped, it is too common to find children spending two or even more years on a single "period" of history, with the result that their knowledge stops short, for example, at Tudor or Stuart times. This should in all cases be avoided.

The best treatment of the course and the selection of the right details to make it so attractive and stimulating to the pupil that he will want to know more of the story, is only possible if the teacher knows a great deal more than he will ever have to teach, so that he can see the material which he uses in the right proportion and relation to the history of the world.* Thus, the history of the Oversea Dominions† is a feature of British history which is too often neglected. The story of our kith and kin beyond the seas, of their settlements and struggles, of the great deeds they have accomplished, of the development of the lands in which they have settled, or which they have administered, is an important and integral part of the story of the British peoples as a whole. But even this stage only becomes intelligible when the pupil realises its place in the story of the world. When dealing, therefore, with the history of

* In this connexion teachers would do well to consult the standard works of European and American history, e.g., Motley, Parkman, etc.

† The Visual Instruction Committee of the Royal Colonial Institute (Northumberland Avenue, London, W.C.2) issues useful little handbooks (6d. each) on the Oversea Dominions and Colonies. Lantern slides can be obtained from Messrs. Newton & Co., 43, Museum St., London, W.C.1.

the British Dominions, the teacher will have abundant opportunity to bring home to his class the fact that they cannot learn British history without learning it as part of a larger whole, and that their sympathy and respect are due to other nations and races, with whom, whether as allies or rivals, fellow-colonists or rulers or traders, Englishmen have had, and still have, so many dealings.

9. British History a Part of World History.—No course of history can be satisfactory that leaves the pupil with the impression that the story of the world began with Julius Cæsar's visits to Britain. To give an adequate picture of the history of the Ancient World is of course impossible, but since we all enjoy the fruits of ancient wisdom and civilisation, many teachers may think that we ought to know something of how these things came to be. Some teachers, accordingly, especially in the earlier years of the children's school life, make the Bible their main source for ancient history, adding such reference to the ancient empires of Egypt, Assyria and Persia as is necessary for the intelligent study of the Old Testament. Other teachers make a practice of giving at a suitable stage in the school course a very simple sketch of world history by means of biographical studies of outstanding figures, leading the pupil to see, not merely disconnected lives, but something of the character of the civilisations which they represent. The important thing in such teaching is to concentrate on those parts of the World's story from which modern civilisation can trace a direct descent, i.e., Palestine, Greece and Rome; it is easy to waste time on stories of primitive man or to devote too much attention to stories of the Asiatic Empires, and even to Egypt, whose contributions to modern civilisation are at best indirect or conjectural. But, through ancient history rightly taught in biography and story and picture, the pupil may learn to sympathise with the beauty and thought that the Greeks developed; to understand how Alexander the Great and after him the Romans spread this precious seed over the known world; to appreciate, however dimly, the place of Rome in history, how the Romans gave law and order and

peace to the world and made a highway for Christianity to spread westwards. And when the pupils come to the great period of the Renaissance, they will be in a better position to understand how renewed interest in the ancient Greeks and Romans gave a freer and richer life to the peoples, and how the university and the printing press passed on this splendid inheritance.

Where a series of lessons on the Ancient World is given, it is usually followed by the ordinary course of British history with its concurrent stream of general history, and experience shows that this is a practicable plan of attacking the wider relations of history. Though there is seldom time for the systematic teaching of foreign or world history, the course should wherever possible include such explanation of the outstanding movements of general history as is necessary for the understanding of our own story at home and overseas : for example, the raids and settlements of the Northmen, the Crusades, the Renaissance and the Reformation, the discoveries and science of the 17th Century ; the expansion of Europe overseas and the position of India under the great Mogul Emperors ; the position of Spain under Philip II, of France under Louis XIV and Napoleon, of Germany under Bismarck and William II ; the struggles that led to the birth of the United States of America ; the international relations of the modern industrial world. Unless some reference is made to these great events, our own history cannot be fully appreciated nor presented in its proper proportions.

In this way it may be possible to remove the complete ignorance of any history except that of Britain—which is now too common—and to take the general history concurrently with our own in such a way as to make it more intelligible and interesting.

10. The League of Nations.—If a teacher brings to his work this broad conception of the treatment of the history of Great Britain and the British Commonwealth of Nations, dwelling not less upon the points of contact between nations than upon the differences which have separated them, he will naturally wish that the children should learn something

of the League of Nations and of the ideals for which it stands. In most cases, opportunity will offer, not only in the history lessons but at other times, for drawing attention to that form of international co-operation which the League represents. It may be pointed out that in the modern industrial world the increased communication between nations, owing to improved methods of transport, the economic interdependence of nations upon one another, and above all the vast scale and terrible machinery of modern warfare, have made it necessary that the peoples of the World should combine with their natural sense of local patriotism a conception of their common interests and duties.

This subject is dealt with more fully in Appendix B. at the end of this volume.

II. The Connexion of History with Geography.—Geography and history should of course go hand-in-hand, to their mutual advantage, though the attempt to combine them in a single scheme is rarely successful. The influence of geography, especially in its broader physical aspects, cannot be too strongly emphasised. For example, the pupil can be led to observe how the fertile river valleys of Egypt and Mesopotamia became the early homes of civilisation, how the sea has profoundly affected the life of Britain and Holland, and how the mountains dividing valley from valley were a determining factor in the development both of ancient Greece and of modern Switzerland. And geography helps to explain the consequences to Great Britain of her insular position, of her nearness to Europe, of her long narrow shape and of the character of her seaboard, and of the discovery of America. It suggests why the Low Countries have so often been the seat of war and why British policy has always been concerned for the fate of this part of Europe.

In the same way, if geography is intelligently taught, much knowledge that is essential for a proper study of history can be acquired in the geography lessons. Thus, in some schools the study of the geography of Asia includes

elementary ideas about the rise and spread of Moham-
medanism, with special reference to the numerous Moham-
medan subjects of Great Britain. And to those teachers
who are specially interested in world history, the con-
nexion with geography offers great attractions, for in
geography teachers have always aimed at some knowledge
of the whole world, and if the history is more closely con-
nected with the geography, it tends also to become the
history of the world.

The historical atlas should be constantly at hand, and the
importance of rapid sketch-maps, in illustration of the
history, drawn both by teachers and by children, cannot
be over-estimated. Good historical maps will often be
needed to show, for instance, the dominions of Henry II.,
the early French and English colonies in North America,
the Empire of Napoleon, the gradual development of the
British Commonwealth of Nations, and the vast scale of
the recent Great War.

12. Illustrations of the Foregoing Principles.—It may be
useful to give a few definite illustrations of the principles
set forth in the preceding sections.

(a) In *Ancient History*, the stories of the ancient world
which the pupils have learnt in the junior classes should
be reviewed, and where possible a few lessons might be
given on some of the main features of the early civilisations
which those biographies and stories illustrate, especially
where they bear on our own history.

(b) In *Early British History*, a general sketch of Roman
Britain as a part of the Roman Empire, the invasion of the
“barbarian” Teutonic tribes, and the gradual establish-
ment of three kingdoms, would lead to the supremacy of
Wessex. Then the Northmen come upon the scene, first
as piratical bands of sea-warriors, later as organised
invaders under their kings, who at last reign in England.
The restoration of the Saxon line follows, and the reign of
Harold is cut short by the Norman conquest. Reference to
the work of the Northmen elsewhere in Europe, not only
in Normandy but also, for instance, in Naples and Sicily,
would naturally be made. Some account of the introduction

and growth of Christianity, the great work of the Church in civilising the "barbarians," and in making the new England and together with Charlemagne in organising the new Europe, would be an important part of the course.

There is only need to mention or memorise the names of a few persons. The names of Roman generals, the confused facts of the Heptarchy, and the inter-tribal wars, the majority of the Saxon kings and of nearly all the battles, can be put aside. On the other hand, the pupils should be given some idea of the two main political divisions of England in early times : the kingdom of Northumbria with a civilisation founded on Celtic Christianity (Columba, Aidan, Bede, Cædmon, etc.) and the kingdom of Wessex drawing its ideas from Roman Christianity and in communication with European centres of learning (Wilfred, Alcuin, etc.). Also much stress can be laid, with special reference to local conditions, on the visible traces of themselves which Celt, and Roman, Saxon and Dane have left in the names of places, remains of buildings and earthworks, roads, coins and pottery ; use can be made of fine old legendary stories, and of pictures showing dress, armour and ships ; England as it then was, in great part tracts of wood and swamp, may be pictured by the class. Living witnesses to the story of those times can be found in the Celtic inhabitants and Celtic speech of Wales, and in the Saxon framework of our own language.

By means of the map, beginners should be familiarised in a simple way with places and with routes, and more advanced pupils should learn how the waterways helped, and forest, marsh, and highland impeded, the movements of bodies of men. Upon the map, when the story of the Roman occupation is being told, the pupils should mark the great military posts of the Romans, and their important towns, e.g., London, Colchester, York, Chester, Lincoln, Bath, Silchester, etc., and the great Roman roads and walls. They should learn how the line of the Roman roads can be traced by place-names derived from the Latin *strata* :—Stratford, Streetly, etc. They should learn that when they find a town whose name ends in "chester" or "caster" it

indicates the existence of fortifications often of Roman origin; that when a town or village ends in "ham" or "ton" or "burgh," it is of Saxon origin; and that "by" or "rigg" or "thorpe" indicates a Danish settlement. They should understand why such names occur frequently in certain parts of England and are entirely absent in others.

(c) In the treatment of the *Middle Ages*, outstanding features should be selected and illustrated by accounts of interesting and important personalities. Thus life in Norman times could be illustrated by William I and Henry II; the beginnings of Parliament by Simon de Montfort and Edward I; the story of the Church by Hildebrand, Becket, St. Francis and Wycliffe; the wars of the Middle Ages, including the Crusades and ideals of chivalry, by Richard I and the Black Prince; the story of Wales and Scotland by Llewelyn, Wallace and Bruce; the growth of knowledge by Dante, Roger Bacon, Marco Polo, Prince Henry of Portugal, and Caxton; and the story of France by St. Louis, Edward III, Henry V and Joan of Arc. But time would be wasted and the children bored by an enumeration of the battles of Stephen's Civil War or of the Wars of the Roses, or again, by the internal history of the Lancastrian period. Periods such as Edward II's reign—mere records of bad government—might be passed over with only a few carefully chosen words to give continuity to the story. Such dull and confused periods can best be marked in the pupil's mind by a few picturesque incidents, e.g., the battle of Bannockburn, the snow-storm at Towton and Margaret's escape from Bamborough.

Without any attempt to define precisely such terms as feudalism, chivalry, the Church or the manor, it will frequently be possible to bring home to the children's minds by concrete examples how these characteristic institutions of the Middle Ages influenced the lives and actions of men of that day—what a prominent part, for example, the churchmen played in the making of history, and how much power the ownership of land brought with it.

The names of streets, roads, buildings, e.g., Watling Street, Greyfriars, Friargate, Priory Lane, Abbey Street, Jury Street, Old Jewry, Old Bailey, Guildhall—should become names with meaning. Similarly the most striking differences from age to age in the style of architecture, e.g., the change from Norman to Early English, and in the methods of building, e.g., the change from wood to stone and brick, can sometimes be shown by local churches and other buildings.

If time can be found, a few lessons might be devoted to two or three battles of decisive character, such as Hastings and Sluys and Agincourt, which lend themselves to picturesque treatment. The children might draw plans of these or move about pieces of coloured cardboard to represent the changes in position of the combatants, and with the help of pictures they can compare the bowman and mailed knight of Agincourt and the soldier of to-day.

(d) In studying the *Tudor Period, and the 16th Century*, several lessons might with advantage be given to the life and work of Columbus, da Gama, Frobisher and other discoverers, and again to the story of the Armada and of other famous exploits of Elizabethan sailors, and to the beginnings of the East India Company. The story of the Navy becomes of special interest and importance from the time of the Tudors. With the help of pictures the children will readily appreciate the contrast between the Spanish galleon and the "Great Harry" of Henry VIII—the first British battleship—or the "Sovereign of the Seas" of Charles I; or again between the "Dreadnought" of Drake and the "Dreadnought" of to-day.

It is not easy to spare adequate time for the Renaissance and the Reformation—both difficult—but the pupils can be helped to realise how in life and in literature, in art and architecture, no less than in discovery and religion, the Tudor period marks the beginning of modern history. The teacher might tell of Copernicus and Leonardo da Vinci, of Erasmus and Luther, Calvin and Knox, and he will explain that the Reformation in England was only part of a general movement. That the position of the clergy was altered,

that the monasteries were destroyed, that a service in English replaced a service in Latin, and that there were then—as there are now—different kinds of Protestants in England as well as elsewhere, are facts which a child can grasp. But the theological discussions which accompanied these external changes must obviously be left untouched.

Some knowledge of European history on the part of the teacher becomes especially necessary at this stage; for instance, he should be able to contrast the comparative peace of Tudor England with the invasions of Italy, the French religious wars, the revolt of the Netherlands, and the Ottoman penetration into Europe.

(e) The constitutional struggle of the *17th Century* should be presented as simply as possible, and illustrated by the careers of outstanding personalities like Hampden and Strafford. But there should be no attempt to teach the bewildering succession of Acts of Parliament, Remonstrances, Petitions, etc., which if not unintelligible, are at least wearisome to children. Some of the essential features of the Constitution under which we live are the direct result of the Revolution of 1688, and these should be made clear to the older pupils.

The history of the Great Civil War, however, presents peculiar opportunities for connecting local with national history, for it has left its traditions and associations in nearly every county. Events that happened in the neighbourhood of the school, the part played by the ancestors of local families, the material traces of the conflict which still remain, not only command a special interest in themselves, but add reality to the whole study. Such details may be found in numerous books and pamphlets; amongst contemporary works, for example, Mrs. Hutchinson's *Memoirs* are useful for Nottingham and Derbyshire, parts of Ludlow's *Memoirs* for Wiltshire. The London child should know how Charles was baffled at Brentford, and how the London trainbands held their own at Newbury. The west-country child should know the parts played by Bristol, Gloucester, Plymouth, Taunton. The East Anglian will be moved by the tragic story of Colchester, and he ought to

understand why his own neighbourhood was happy in its general freedom from the incidents of war.

The beginnings of the British Empire in the 17th Century and the first half of the 18th should receive due attention—the story of the American Colonies, the struggles of the Dutch, French and English East India Companies, the settlements in Newfoundland and the Bahamas, the capture of Jamaica. Here the teacher will find great opportunities for an interesting treatment of geography; for instance, by indicating the gradual penetration of the American continent from the French settlements in Canada and the English settlements in Virginia, Pennsylvania and New England, the Jesuit missionary stations on the Great Lakes, the explorations of La Salle and the founding of New Orleans, the line of frontier posts along the Alleghanies and the advance from West Virginia and Pennsylvania into Kentucky.

(f) *The History of Recent Times* (18th Century and onwards) can never be made really interesting and attractive if treated reign by reign. The history of the 19th Century and afterwards will require special care. Its chief characteristic is economic and political development, and it is difficult to avoid the controversial sides of questions closely connected with present-day politics. There is, however, scope enough for all the children's powers in those aspects of history which are not of this character, and the discussion of topics on which they are unable to exercise their own judgment is useless.

Teachers accordingly have different ways of approaching the history of modern times. Some give short courses of lessons under such heads as "The Development of the British Dominions," "American Independence and the Growth of the United States," the "Struggle against Napoleon," "The Agricultural and Industrial Revolutions," "Social Reform," "The Progress of Science and Invention," "The Making of Modern Europe," "The Great World War and the League of Nations," and so on.

Others prefer to deal with these movements through the lives of the men and women who played a principal part in

them. Thus the story of the British Dominions is taught by the lives and deeds of early settlers, of explorers like Sturt, Eyre and others, and of such men as Chatham, Clive, Wolfe, Nelson, Sir George Grey, General Botha, Gordon and Lord Roberts ; social reform through the biographies of Wilberforce, Howard, Lord Shaftesbury, Elizabeth Fry and others ; the industrial revolution and the progress of science through the work of Cartwright, Watt, Stephenson, Smeaton and Brindley, Pasteur and Lister.

Accounts of the lives of individuals will, however, probably be found to be an inadequate method of dealing with the more recent history of the British Commonwealth of Nations. For instance, it would be clearly undesirable that children, because they are taught, as they should be taught, to admire such personalities as the Lawrences, Nicholson, Havelock, and Outram, should acquire the idea that Indian history ends with the Sikh Wars and the Indian Mutiny. Other methods must be devised to cover the history of the last half-century, but it should be possible to give children some idea of the nature of British rule in India and to describe picturesquely the expansion of settlement and the conditions of life in different parts of Canada and Australia, and the development of exploration and administration in Africa.

Again, the results of great industrial and political changes, such as the increased use of machinery, the Reform Bills, the Factory and Education Acts, can often be made clear to the children by tracing the actual effect of such changes in their own town or locality. In this way they should learn something of the shifting of the great centres of industry and population from the east and south to the north, the connexion of their town or country with parliamentary institutions, the contrast between life in a large manufacturing town of to-day and life at a time when most people lived in villages and market towns ; the conditions of industry before and after the great reforms of the 19th Century.

It is specially necessary in this modern period where the wealth of material is so great, that attention should be concentrated on the broadest and simplest aspects of the

subject. Comparisons between the present and the past will frequently suggest themselves, and it is by the method of comparison rather than by set lessons or direct instruction that the foundations of intelligent citizenship can be best laid. Any attempt to deal elaborately with the parts of the British Constitution, the local government of the country, or the administration of justice, is wearisome and must be largely unintelligible to children.

On the other hand, they can easily perceive how many of the institutions which they see around them have their roots in the past, and how often, though they are called by the old name, they fulfil new functions. Without any pretence of studying constitutional history in detail, they can be led to see—in fact they can often discover for themselves—that the powers of the monarch have altered in practice from time to time ; that Parliament as set up by Edward I was composed of very different people, and was summoned for a very different purpose and in a very different way from the Parliament of to-day ; that a sheriff in England was one thing in the 12th Century and is another in the 20th ; that the custom of the judges going on assize dates back to Norman times ; and that from first to last there has been continuous growth and development.

Social conditions lend themselves even more readily to this method of treatment. The teacher will be almost compelled to touch upon the differences between the present day and, for example, Tudor times, in such matters as the provision made for the infirm and aged, the mobility of labour, and the facilities for travel, especially by sea. And the way in which the progress of science has knit together not only single countries, but all parts of the modern world, is a striking and profoundly important fact which should be impressed upon the pupils.

13. Specialisation.—It is of great advantage if the staff of a school includes some member who is specially interested in history, and who will therefore throw himself into the work with enthusiasm. Even where it is not possible to delegate to the specialist a very large share of actual teaching, he can be of great service in advising other

teachers, in helping to draw up the syllabus, and in suggesting books for reading and reference and other aids to historical study.

14. **The Arrangement of the Syllabus.**—Whether the syllabus should be arranged on a “periodic” or “concentric” plan is a question about which opinion sometimes varies, though experience shows that, for the senior classes at any rate, the “periodic” plan works out more successfully in practice. The importance, however, of this question; when compared with other questions, has been over-rated, and there is no reason why the two plans should be mutually exclusive. In the larger schools at any rate, it is possible, and quite common, for a series of stories on the concentric system in the junior classes to precede the study of “periods” in the senior classes, and this again may be followed by a general revision in the final year. But it is necessary to take care that no period shall be isolated, for history cannot be properly taught if it is merely cut up into convenient lengths, and presented in detailed sections which are not treated as component parts of a whole. Every era stands related to its predecessor, and to the facts which encompass us to-day; so that in a sense the teacher of a period is the teacher of the whole history. It is, therefore, essential that there should be frequent reference, in the course of each year’s work, to those earlier events which bear upon it, as well as illustration from the institutions and customs of to-day. Regular and intelligent revision throughout the course is essential; and at some stage in the course it is desirable that the whole story should be revised, not merely by chronological repetition of what has been done before but by gathering up the threads of the story in such a way that its continuity may be clearly seen, though the teacher must, of course, beware that the idea of continuity does not lead him to date back to earlier periods the problems and preoccupations of to-day.

15. **The Necessity of Private Study by the Pupil.**—Exposition by the teacher in vivid and simple language has its place in history teaching and may be more inspiring

than any book. But if the teaching of history is to be worthy of its place in the school curriculum, occasions must be found, and multiplied as the pupils grow older, for sustained effort on their part, for real study, for concentration of mind. To create a fleeting impression is not enough. Something more is necessary. Essential facts should be learnt and regularly revised, and outstanding dates which serve as useful landmarks should be definitely memorised throughout the senior classes. And when the pupils have been trained to read a book, many teachers find it a good plan to throw on the class the responsibility for mastering the relevant chapters of the text-book, and to postpone the oral lesson until the pupils have first done their best to wrestle with difficulties and to assimilate the main points. A series of oral lessons, however brilliant and entertaining, cannot be expected to be more than evanescent, unless it is supported by solid study on the part of the pupil; nor can any devices, however ingenious and attractive, be made an efficient substitute for hard work. Any attempt to teach history by reading the book aloud paragraph by paragraph will prove entirely ineffective. When the teacher has discovered how far the pupils understand what they have read, he will be able to illumine and supplement the book, amplifying stories, opening up new ground, and quoting some telling phrases associated with a person or event, and answering the children's questions.

16. Oral and Written Questions. Note-Making.—It will, of course, be necessary for the teacher to test the children's ability to master the substance of their books by means of oral and written answers to questions and occasionally by longer compositions. The more advanced pupils should be systematically trained to make for themselves brief notes or summaries of lessons or chapters. Their note-books may be illustrated by sketches, maps, pictures, and so become not only an object of pride, but a most valuable means of revision from time to time. Other notes might well be the result of reading and comparing accounts of the same episode in more than one book. In this way the pupils will gain some training in the critical faculty as

well as greater facility in the use of books, and they will learn to beware of catch-words and to avoid hasty and dogmatic judgments by recognising the different points of view from which the same subject can be presented.

17. Chronology.—Dates are an important means of tracing and fixing the course of events. For a time some teachers tried to do without them with the result that many children lost all sense of historical sequence. All good teachers now recognise that some dates are necessary and can easily be memorised by children. “It is a fatal error to assume that even a young child is incapable of learning and retaining the facts that he will need when he begins to build up and comprehend the structure of history as a whole. ‘The When, the Where and the Why’ are the essential points in our study of History, and we may connect them in that order with ‘the Who,’ which should take a leading place in the earliest stage.”*

With a view to giving the children clear ideas about dates and the duration of periods, it is a good practice to require them to construct time charts, on the principle of allotting† equal spaces to equal intervals of time. The salient events—not too many in number—are entered on these at points corresponding to their dates, and, though the dates of all the events marked need not be remembered, some knowledge of the approximate time at which important events happened should be learnt. As a rule, the more simple the time chart, the more arresting and effective it is. Some pupils make in their note-books simple time charts illustrating separately such features as the settlements of the Northmen, the voyages of discovery, the Reformation, the growth of the British Dominions, the history of the parish church, events in the lives of great men, and so forth.

And in some schools the pupils co-operate in the construction of a general chart for the classroom wall, to include

* See “The Teaching of History,” Educational Pamphlet, No. 7, Board of Education, page 32.

† See pamphlets on Time Charts (Miss Madeley), published by The Historical Association.

simple and striking illustrations together with a special section for events or personalities prominent in local history.

Some simple tables of genealogy, too, might well be made when family relationships are historically important.

There is much to be said in favour of the old practice of committing to memory the dates of the accession of the English monarchs as a useful framework of chronology in addition to the dates of certain other outstanding events. Sometimes it is urged that too much is made of kings and their reigns in the ordinary school text-book and lesson. But, in the first place, children require above all things personality, which appeals to them more strongly than anything else ; and, in the second place, the character of the king has in earlier times nearly always, and in later times very often, been a determining factor in the story of our country. The strong king has his way ; the weak king, after a time of confusion due to his weakness, is swept from the field ; and it would be a new and stimulating conception to a child to find that of all men in his kingdom no one worked so hard as the king who really tried to rule.

18. The Use of Illustration.—Pictorial illustration,* contemporary work especially, is indispensable in all stages of the teaching. Portraits of eminent persons, reproductions of old prints, documents and other famous records, such as the Bayeux tapestry, will often form the best means of representing social life and customs, pageants and battles, and the apparatus of husbandry, trade and war. Some modern pictures of historic scenes may also be useful. Copious use, too, should be made of vividly written descriptive passages collected from the works of first-rate writers of historical fiction.

The story of music and song may also sometimes be a powerful, if incidental, aid to the teaching of history. For

* See the various sets of excellent postcard illustrations published very cheaply by the British Museum, especially those dealing with ancient and mediæval civilisations. The Victoria and Albert Museum and the National Gallery also publish excellent cheap illustrations. For the Renaissance, the prints published by the Medici Society (Grafton St.) are invaluable.

example, old hunting airs and folk-songs illustrate much of our social life, while Dibdin's "Sea Songs" make a striking accompaniment to the story of British enterprise and adventure.

19. The Use of Historical Fiction.—Every encouragement should be given to the children to read good historical fiction. There is scarcely an episode of importance, from the Roman Invasion onwards, which has not been dealt with by a writer of ability. A collection of such books, which should be of real literary merit, should be in every school library for the use of pupils as well as teachers. Historical novels are, if possible, better read at home than at school, for the habit of reading at home for pleasure will strengthen the older pupils' power of independent study. It will help them to use books to good purpose in the classroom and to prepare many of their lessons for themselves with pleasure and with excellent effect upon their general education.

20. Conclusion.—In conclusion, there is one aspect of History which is of first importance to the teacher. From its study the mature reader may gain a wider intellectual outlook and a saner judgment, but for children it is pre-eminently an instrument of moral training. History deals with true stories of real men and women, of actual communities and nations; it is a record writ large of their influence for good or evil. There is no need for the teacher to turn his lessons into sermons; still less should he encourage the children to sit in judgment on the great men and nations of the past. If he makes history living to the children, they will learn naturally in how many different ways the patriot has helped his country, and by what sort of actions nations and individuals have earned the gratitude of posterity. Without any laboured exhortations they will feel the splendour of heroism, the worth of unselfishness and loyalty, and the meanness of cruelty and cowardice; and the influence of their lessons in history will be at work long after the information imparted to them has been forgotten.

CHAPTER IV.

GEOGRAPHY.

SUMMARY OF CONTENTS.

I. GENERAL CONSIDERATIONS.

Section.

1. The Aims of the Teaching.
2. Its Relation to Other Subjects.
3. Scope of the Work.—Selection necessary. The teacher.

II. ARRANGEMENT OF THE SCHOOL COURSE.

4. The Stages of the Course—The three stages. The aims at each stage.

(a) THE FIRST STAGE.

5. Early Lessons.—Wrong to begin with definitions. A mistake to limit instruction to a single district. Simple lessons on typical scenes from the main climatic regions of the world to be preferred.
6. Method of Treatment of Early Lessons.—Accounts of life in other lands. Travellers' stories. Use of illustrations. Cautions.
7. Topics of Local Interest.—Talks about the neighbourhood. Nature rambles.

Section.

(b) THE SECOND STAGE.

8. **Systematic Survey of the World.**—In broad outline only. Use of observation. Stories in greater detail. The regional division of the world. Trade routes. The general arrangement of land and water on the earth.
9. **Simultaneous Study of the Home Country.**—The build of Great Britain. Manufacturing and farming areas. Contrasts. Problems which the children can solve for themselves.

(c) THE THIRD STAGE.

10. **General Lines of Treatment.**—Change in methods. Choice of subjects for closer investigation. Examples : Wheat-lands of the World ; Indiarubber ; Mediterranean Regions ; Monsoon Regions ; Regions of inadequate rainfall.
11. **The Reading of Maps.**
12. **Revision of the Study of the Home Country.**—Exercises for the children. The use of the map. Local geography.

III. ADVANCED WORK FOR SENIOR CLASSES.

13. **Selection of Special Aspects of Geography.**—Examples :—
 (a) *Physical* : The scientific aspect. (b) *Economic or Commercial* : The textile trades ; elementary ideas of Economics. (c) *Historical* : Discovery and early travel ; scientific expeditions ; changes induced by invention.

IV. AIDS TO GEOGRAPHY TEACHING.

14. **The Use of Geographical Books.**—Geographical " readers " should not be used by young children. Reading aloud by the teacher. Books which the children can read. Typical exercises on books. The Reference and Public Libraries. Books of reference.
15. **Maps and Atlases.**—The purpose of the map. Their use. Training in the use of maps. Models. Contour lines. Transverse sections. The learning of maps. Map-drawing. Wall maps. Atlases.
16. **The Globe and its Uses.**—Its value. Its adjustment.
17. **Educational Visits.**—The Imperial Institute.

I. GENERAL CONSIDERATIONS.

1. **The Aims of the Teaching.**—The claims of geography to a place in the curriculum of an Elementary School are obvious. Any exhaustive treatment of the subject must

be reserved for adult students, but, even in its early stages, it involves so many facts within the range of every child's experience, e.g., the varying altitude of the sun, or the connexion between rainfall and certain winds, that it provides frequent opportunities for encouraging a child to reflect upon his immediate surroundings, for stimulating thought and imagination about the world in which he lives, and so helps him to realise how, as civilisation advances, communities come to depend upon one another for the necessaries and comforts of life.

A well-planned school course, besides imparting a good deal of useful knowledge, should give children a fair acquaintance with the more important principles of geography and some power to apply them, especially to their own district and country. It should also teach them to understand and make good use of maps constructed to illustrate such characteristics of any region as its physical features, climate or productions. By the end of the course the scholars should have formed the habit of mind which is not content with a bald statement of fact but asks for reasons, and should have learnt how and where to obtain further information about any geographical topic in which they may be interested.

2. Its Relation to Other Subjects.—The amount of time specifically assigned to geography on the time-table need not be excessive; many experienced teachers find 1—1½ hours a week sufficient. The subject has much ground in common with other parts of the curriculum. History cannot be studied without reference to geography, just as geography loses much of its meaning and value without the occasional aid of history. The exercises in practical measurement which come into the arithmetic or the drawing course and the weather observations and lessons on plants and animals given as part of the nature teaching and gardening, all have a direct bearing on geography, as have lessons on elementary physics and chemistry. Conversely, the construction of simple models in relief, and the cutting-out of shapes or stencils for outline maps are good

exercises in handwork. On its descriptive side geography furnishes abundant material for exercises in the writing of English composition.

3. **Scope of the Work.**—The range of the subject is so wide that careful selection of matter for study is essential, and in framing a syllabus every teacher will have to ask himself what is best suited to the particular needs and resources of his school. The answer must depend partly on the district in which the school is situated and on the circumstances of the children, but even more, perhaps, on the qualifications and experience of himself and his staff. Many schools possess specially qualified teachers who are able to cover a good deal of ground, and do fairly advanced work in their upper classes. In some schools, however, the teachers have not had the advantage of studying geography in its modern developments under competent guidance, and a less ambitious syllabus may be all that it is advisable for them to attempt. Some of the principles and methods described in this chapter may be unfamiliar to them; but many of the suggestions made in it will, it is hoped, be of use by helping them to improve their lessons even on the home country, and by indicating possible lines of reading which they can follow up for themselves. Good text-books for teachers are not rare; but apart from these, a teacher who can find time and opportunity to investigate the geography of his own district, or to read good books of travel, will discover that the results of his studies will often be as interesting to his scholars as to himself. Even in the least favourable circumstances, he can do valuable work by inducing his older scholars to study suitable books with the help of their atlases, by setting them carefully prepared questions and exercises on what they have read, and by encouraging discussion on any points of interest that arise from time to time.

II. ARRANGEMENT OF THE SCHOOL COURSE.

4. **The Stages of the Course.**—A course in geography may conveniently be considered as falling into three stages.

The first stage is for the junior classes, i.e., for children up to about nine years of age, the second and third stages for the senior classes including those in Central Schools, in which the children can read more widely for themselves, and are capable of working definite exercises without much assistance. How much of the third stage can be attempted, and in what class the transition to it should be made, must be left to the discretion of the teacher; but in most schools enough can be done to make the children's knowledge more definite, to stimulate their curiosity, and to serve as an introduction to other studies which they may pursue in after-life.

In the first of the three stages the main object of the teacher will be to awaken the children's interest in their immediate surroundings, both in the phenomena of nature and in the lives and habits of the people, and to compare with these the lives and habits of other peoples living amongst different surroundings.

In the second stage he will endeavour to impart a general knowledge in broad outline of the geography of the world. The children should, for example, gain some knowledge of the distribution of land and water, become acquainted with important types of land relief and climate, and acquire incidentally some preliminary notions about the industrial and commercial relations between one part of the world and another. Here, too, should begin the more systematic study of the home country.

In the third stage the aim should be to give a clear impression of the world as a whole, together with some definite knowledge of its most important regions, especially the members of the British Commonwealth. At the same time the study of the home country will be continued in increasing detail. By the end of the course the children should have a firm and intelligent grasp of the main elementary generalisations of geography—the effects, for instance, of world position, land-relief, climate, and vegetation on the occupations and activities of mankind. It will not, however, be necessary to burden the children's minds with an excess of details but the really salient facts should be

thoroughly well known ; growing familiarity with important geographical principles and the regular use of the map will enable them to find for themselves whatever details they want when they do want them.

(a) THE FIRST STAGE.

5. **Early Lessons.**—The traditional plan of beginning by learning definitions is acknowledged to be a mistake. Young children may be taught to say by rote what an "isthmus" or a "promontory" is ; but the things themselves are, as a rule, outside their experience, and the teaching becomes solely the teaching of words. Even if a thing defined is represented by a picture or a sketch it is liable to be misunderstood unless attention is focussed upon the quality which gives it sufficient importance in the eyes of a geographer to render a special name desirable. From this point of view, for instance, capes are landmarks by reference to which ships are sailed along the coast, mountains are barriers ; hence the teacher would mention the first when he is concerned with ships and the sea, the second when the class is considering the direction of roads and the ways out of one river valley into another. These are the real elementary notions which should guide and govern the teaching ; the nomenclature will be acquired incidentally as the need for it is felt.

Another common practice is to begin with a series of detailed lessons which deal solely with the district or county in which the children live, and then to pass rapidly to a systematic course on the geography of England and Wales. It is argued that the learner's own neighbourhood forms a natural basis on which to build. Direct observation is certainly essential from the first ; but experience has shown that to limit instruction at this stage to a single district or county is, as a rule, a mistake. It is hardly possible to draw sufficient material from so limited a field for illustration of geographical ideas in a form suitable for young children ; and any systematic study of a particular area, even of England and Wales, is premature.

It will probably be found both easier and more profitable to introduce children to geography by a series of simple lessons about the world in which they live. Such lessons need not, and indeed should not, be based on any hard and fast plan. It is unnecessary, for instance, to deal with the continents in a conventional sequence, or even with continents, as such, at all. But an attempt should be made to include typical scenes from the main climatic regions of the world, and the contrasts between these and the conditions familiar to the children should be emphasised with special reference to such matters as food and how it is obtained, clothes, houses and travel. These lessons should, from the first, be given a definite topographical setting and the scenes referred to their position on the map or globe.

6. Methods of Treatment of Early Lessons.—Various methods of treatment have in practice proved successful. In many schools stories are told of children in other lands—their daily life, their food, clothing, their homes, and the various means of travelling and transport. Some teachers hold that interest may best be aroused through the presentation of vivid contrasts. The Eskimo or the dweller by the Ganges is compared with the familiar people of the school district; the life of the wandering Bedouin is contrasted with that of the lowland farmer in England. Other teachers read stories told by travellers or explorers, who visit distant lands and find there many things that are new and strange, strikingly unlike the conditions of life at home. Most young children are interested in stories of travellers lost in desert or forest, of sailors shipwrecked on lonely islands, of encounters with wild beasts, of heroism in the presence of great natural dangers, such as earthquakes, volcanic eruptions, icebergs, avalanches, floods and fire.

In these early lessons constant use should be made of well-selected pictures, photographs and, where possible, lantern slides of real scenery such as mountains, deserts, different types of sea coast. This is specially necessary in schools in large towns, where the children's experience of natural phenomena is often very limited. Verbal description

by the teacher can by itself do little ; but children can be encouraged to talk and ask questions about the pictures, and the teacher will thus be able to correct some of the misconceptions which even the best pictures can hardly prevent, as well as to supplement the information which they convey. It follows from what has been said that it is undesirable to give young children set lessons on such topics as mountains, rivers, lakes, the shape, size, and motions of the earth—in fact, on the codified results of science. It may be necessary to refer to one or other of them incidentally ; but any attempt to treat them fully is better reserved until a later stage. Further, the teacher should always be on his guard against formal or arbitrary definitions. For example, the terms spring, summer, autumn, winter, will convey a more real meaning to the children if associated with seasonal changes in plant and animal life than if defined as included so many months of the year.

The character of a climate, again, instead of being defined, may be illustrated in various ways. Thus, in some countries an extreme climate can be presented as one where the sunshine is bright and often continuous from dawn to sunset in winter and summer alike, where rain and snow are almost unknown except at the change of these two seasons. In others, winter may be pictured as a season of light work and social enjoyment, when travelling is made easy on roads covered with frozen snow and by the frozen rivers. The teacher may explain in simple language how, in some countries, though there is no such rainfall as in England, the moisture required for the growth of plants is supplied by the melting of the snow in early spring, by the gradual thawing of the frozen ground, which keeps the water long after the summer has begun, by the copious dews after the hot days, and by brief thunder-showers.

7. Topics of Local Interest.—Local geography at this stage should take the form of conversations about the neighbourhood in which the children live. Near the sea, for example, the dangers of the shore and the difficulties of navigation can be illustrated by reference to the lifeboat

station, the nearest harbour, the pier, the lights and sirens on the coast. In almost any part of the country the local roads and railways, and the kind of traffic seen upon them, will be among the topics which readily suggest themselves. Again, the goods sold in local shops and markets, the materials obtained or manufactured in the neighbourhood, the common articles of food and clothing, can be connected with the stories of other lands. Nature lessons, especially when walks or rambles are included, will furnish abundant opportunities for directing observation to such important facts as the changes of the seasons, the apparent movement of the sun across the sky, the connexion between wind and weather, the action of running water, the sowing and reaping of crops and the gathering of fruit.

(b) THE SECOND STAGE.

8. Systematic Survey of the World.—When the children have gained some ideas of typical scenes in various countries the teacher can go on to deepen these impressions by means of a fuller and more systematic survey of the world, remembering always to confine himself to the most important facts and to broad outlines. There can be little doubt that in the past the detailed treatment of areas has often been attempted too soon; it is now recognised that a few leading ideas of cause and effect, thoroughly grasped, are worth far more, at this stage, than a mass of unconnected information about particular places or districts.

Direct observation has its place in this, as in every other stage. The training begun in nature rambles can be continued and developed now on more strictly geographical lines. In watching a winding stream, for instance, the children can be led to notice how the current swerves from side to side, how this movement affects the character of the opposite banks, how and why the rate at which the water flows varies in different parts. The sun's path across the sky can now be observed more systematically, and its altitude at different times of the day and of the year recorded by means of the shadow cast by an upright pole, or by the use of a simple clinometer. At ports, or at places

on sea-coasts or near navigable rivers, much can be learnt by observing the rise and fall and action of the tides, and the coming and going of ships with their cargoes, whilst, in rural districts, the crops grown, their character, seed-time and harvest, the nature of the soil and its preparation may be noted. Much of the outdoor work done in arithmetic can be made to help the geography teaching, e.g., the estimation of distances by "pacing" or by "walking time," and the determination of areas for the making of plans or simple maps. This will lead on to the interpretation by the children of the local one-inch or six-inch Ordnance Survey map.

Stories and descriptions of other lands and peoples will now be arranged in more definite sequence and treated in greater detail. The children will have already learnt something of the characteristic features of plant and animal life in different areas; the connexion of these features with different kinds of climate can now be made explicit. Thus fur-bearing animals will be associated with cold areas, treeless plains with light rainfall, thick-leaved plants with long periods of dry weather. In this way such terms as tundra, prairie, desert, come to have a more real meaning than any formal definition can convey.

Children can be led to divide the world into regions according to the winter and summer conditions; to mark off the surface of the earth into hot, warm, cool, and cold areas; to realise how these areas lie more or less symmetrically on either side of the equator, and to understand how all these conditions affect the habits and occupations of the people living in one region or another. For this purpose the teacher may have to give more than one picture of any particular region. The tundras and steppes, for instance, should be described both in their winter and in their summer aspects, while in the hot areas contrasts should be drawn between hot wet and hot dry regions.

Next, it is natural to pass to the relations and intercourse between one nation and another, especially between ourselves and other peoples. It can be shown how the need for interchange of productions has led to the establishment

of trade routes, and how the direction and nature of these have been determined largely by physical and climatic features. Children readily notice the names of distant places associated with articles of food and clothing, Indian tea, Canterbury lamb, Canadian cheese, New Zealand butter, Australian fruit, Egyptian cotton, and many important facts will come to light if these commodities are traced from producer to consumer. Every advantage, too, should be taken of events which are of sufficient general interest to give them a prominent place in the daily press, e.g., expeditions in little known regions, long journeys by motor and aeroplane or airship.

During this stage the general arrangement of land and water over the earth's surface must be clearly visualised by the children. To help them to realise the relative positions and sizes of the great land masses, and the shape and extent of the intervening oceans, a good plan is to let them follow on the globe the journeys of such pioneers as Marco Polo, Vasco da Gama, Magellan, Drake, and Franklin. From the difficulties and problems which confronted these early travellers the teacher can draw abundant material for instruction in a most interesting form. Various incidents in the story of exploration will call attention to the changing altitude of the noonday sun as the travellers proceeded northwards or southwards: others will bring home to the children how, in the early days of sailing ships, journeys were dependent upon the direction and strength of the prevailing winds in different parts of the world; how mountains and deserts stopped progress across the land; how difficulties arose through floods or drought. In fact, if he chooses his stories well, the teacher can in a sense lead his children to rediscover the world for themselves, giving them at the same time a correct idea of the general distribution of land and water, mountain and plain, wind and calm, rain and drought, over the world's surface.

9. Simultaneous Study of the Home Country.—In addition to the general survey of the world in broad outline the study of the home country will begin, though it will still be necessary to guard against burdening the children's

minds with unconnected details. While certain leading facts should be known accurately, it is waste of time to learn by heart mere lists of names such as the names of all the capes, bays, or islands round the coasts of Britain.

For this part of the course a beginning will naturally be made with Great Britain. The "build" of the country may first be shown by means of models and maps, but it must be remembered that the use of a model is to teach children to interpret maps and that once this power has been acquired, the model is unnecessary. The children will at once perceive the difference between the hilly west and the relatively flat east and the connexion between high land and heavy rainfall. They will notice how the hills separate one part of the land from another, and consequently how important it is to find ways through. The winding courses of roads, railways, and canals thus become intelligible and the teacher will have little difficulty in working out with his class the easiest route from place to place. Subsequent lessons may go on to show how these conditions together with the varying height of the land affect plant and animal life, how wheat gives place to oats, arable land to pasture, cows to sheep, the partridge to the grouse. Next, the positions of the great coalfields can be pointed out and the country roughly divided into manufacturing and farming areas. The children should gain some definite knowledge of the positions and staple industries of the principal towns and of the various occupations followed in different parts of the country.

This may be followed by the study of the British Isles as a whole ; and, if time allows, the course may be extended to include the chief European States with which Britain has marked commercial relations. The close resemblances which exist between districts in different countries, e.g., between the Fens and Holland, between Cornwall and Brittany, and between the mining districts of England and Flanders, should be pointed out throughout the course. Breadth of treatment is essential. The north-west of England should be contrasted with the south-east, the highlands of Scotland with the low lands, the Mediterranean region

with the great European plain. It is only the most clearly-marked physical and climatic features, the most important vegetable and mineral products and the chief effects of these things upon the lives and occupations of the inhabitants of each region that the children need remember.

The experienced teacher will need no reminder that, over and above his actual teaching, the children must examine and compare instances for themselves. If they have been trained to associate cause and effect, easy problems are well within their powers to solve at this stage. They may be asked, for example, to explain why people who live in steppe-lands wander about from place to place ; why manufacturing areas are densely populated ; or why some parts of England have more rain than others.

(c) THE THIRD STAGE.

10. General Lines of Treatment.—In the Third Stage the broad statement of the world is completed, particular subjects or aspects are selected for closer investigation, and the study of the home country is revised and extended. The methods of teaching will show a distinct change ; children can now be taught to learn from books and atlases instead of relying only on the teacher's oral lessons. Indiscriminate reading, however, is likely to lead only to the acquisition of many unconnected facts, and the books for individual work should accordingly be carefully selected. Children can be set to find the information required to answer a definite question, and either write the answer or be questioned on the facts. Thus, they may be told to find out the months during which a crop in a chosen area passes through its various stages until it is used elsewhere, or to discover what new areas might produce certain raw materials and which of these would command cheap transport abroad. In all cases the ability to use information rather than its mere acquisition should be the aim of the course.

The choice of the particular subjects for closer investigation will depend in part on the teacher's own knowledge, the special activities of the district, the special needs of the

class, and the books available. Whatever subject is chosen, the teacher must decide beforehand the particular object which he has in view. A limited course, in which important facts are presented and main principles deduced from them, is more likely to be successful than any endeavour to cover a very large field of geography. Indeed, too wide a course should never be attempted, and children should not be compelled to learn by heart numerous statements as to cause and effect as set out in the text-books, or allowed to generalise from utterly insufficient data. A sound knowledge should first be secured of such features of the selected subject as world-position, relief of the various areas included, and climate so far as it affects vegetation, the regions inhabited by civilised and uncivilised peoples, and the developed areas and those capable of development. It is seldom advisable to study each continent separately and in detail, but it is important that no purely artificial or merely political divisions should be selected. If, as will probably often happen, the British Empire is the selected subject, the connexions between Canada and the United States should be included, and India should be treated as part of the large monsoon area.

Among subjects which are suitable for closer study may be instanced the following :—The wheat-lands of the world ; the sources of supply of timber, of indiarubber, of vegetable oils, of meat, of wool or of fuel ; the distribution and products of regions characterised by the occurrence of a Mediterranean type of climate, of monsoon rainfall, or of rainfall inadequate for the growth of trees.

The study of the wheat-lands of the world would begin with the regions in which climatic conditions allow both the growing and the ripening of the crop, the distribution of these regions in the world, the topography of each area so far as it affects the production of wheat, the accessibility of each to a port and the distance by ship to the buying areas in Europe, Asia and South Africa. Then the dates of harvest would be found, the time taken in transport, and so the possibility of the buyer receiving a regular supply throughout the year.

The treatment of indiarubber would include the early production from wild trees of the raw material gathered by native populations, the increase in demand after the invention of the process of vulcanising and the subsequent rapid development of rubber plantations which are now almost entirely controlled by two European nations.

In the study of the areas with the Mediterranean type of climate the teacher will dwell upon its outstanding climatic features—winter rains and summer drought—and its characteristic flora of drought-resisting plants; he will pass on to the land-locked position of the European area, with its peninsulas and islands; showing how in early times communication was easy along the coasts, how the region became the cradle of important civilisations, how and why it partially declined in importance later on, and, later still, revived after the opening of the Suez Canal. He will then contrast these facts with the conditions of transport and the productions and inhabitants in similar areas in other continents.

The treatment of the Asiatic monsoon region will bring out the effects of the monsoons on climate; the connexion between river traffic, early settlements, and trade routes; how the richness of the valleys attracted a dense population, and how the mixture of races to-day amongst the inhabitants represents successive waves of invaders anxious to seize so rich a prize. This area should then be compared with those having similar rainfall in N.E. Australia, E. and W. Africa, and their present stages of development explained by reference to population and history.

Areas without trees because of inadequate rainfall will serve to bring out man's great activities in spreading the production of wheat and of meat and of the limits set to this expansion by the cost of transport. On the other hand, in many areas of little rainfall, man has been entirely unsuccessful in making any general use of the land to produce any vegetation other than its native plants. The comparison of the different types of natives in these areas and their habits may form another topic for investigation.

11. The Reading of Maps.—In all these cases much attention should be given to the reading of maps; the scales should be noted and the positions of important countries defined in terms of latitude and longitude. Bald descriptions of climate, such as “hot” or “cold,” “wet” or “dry,” should not be accepted. The climate of a region should rather be expressed by its range of temperature and the amount and period of its rainfall. These and other important points may be illustrated by maps specially constructed to bring out the particular features, by diagrams and pictures, and by specimens of the products of different countries. Some of these illustrations may be prepared by the teacher, others by selected children working in small groups. With the aid of his maps a child will readily learn the exact situations of the chief places in the country he is studying, and may discover for himself many of the causes which have brought about the growth of towns, or groups of towns, in certain positions.

12. Revision of the Study of the Home Country.—The geography of the home country should be thoroughly revised during the last years of the child's school-life. Apart from its intrinsic importance, this will furnish much of the material for that comparison and contrast which are so necessary in dealing with new aspects or ideas. Whatever treatment is adopted should arise out of the child's previous study. A pupil in the highest class of a school should not be expected to pursue lines similar to those followed in the earlier treatment of the same area. At this stage he should be applying to the country in detail the principles learned from his outline study of the world, verifying, correcting, amplifying his conceptions, and thus acquiring exact and definite knowledge which will be of value to him in after-life. Constant reference to local conditions and examples is most important; the home country should continue to be the standard of comparison.

The teacher should constantly devise exercises for the children to work out for themselves, leading them, for instance, to make comparisons between different parts of the country from the point of view of physical features,

weather conditions, density of population, and industries. Thus, the seasonal weather conditions of the north-west of England should be contrasted with those of the south-east and other parts, the agricultural conditions of central Ireland with those of eastern England; the weaving and spinning industries on the east side of the Pennines should be compared with those on the west; the Clyde basin with the Birmingham district. The position of sea-ports, watering-places, or other health resorts should be considered in relation to the centres of population which they serve.

The process of tracing out on the map main roads, railways, and canals, and the endeavour to account for the directions these take, will furnish valuable exercises; these will aid in the acquisition of definite knowledge without involving the memorising of strings of names. It will often be necessary to refer to historical or economic as well as geographical conditions. London, Chester, and Stirling, for example, were founded in early times on main routes and on sites capable of easy defence; Birmingham, Manchester, Liverpool, and Leeds owe their rapid growth and present importance largely to the industrial revolution of the 18th and 19th Centuries; while among more recent towns Crewe and Swindon are products of the spread of railways, Cardiff of a special industry (the export of steam coal), Brighton and Southport of the modern demand for seaside health resorts. In some districts teachers specially interested in local geography have been able to make good use of a survey of "place-names" and their significance.

The local geography at this stage might now include figures giving the sizes and numbers of the features described or observed. The numbers of houses and of inhabitants in the village and in its neighbourhood or in various streets, the number and positions of shops of different kinds, the characters and destinations of the roads and the distribution of evergreen and other woodlands and of arable and grass fields can be observed and recorded by the members of a class and conclusions drawn from these observations. Many such sets of facts can be plotted on tracings of the local six-inch Ordnance Survey maps.

III. ADVANCED WORK FOR SENIOR CLASSES.

13. **Selection of Special Aspects of Geography.**—In the highest classes of some schools, especially where the children stay beyond the age of 14, it has been found advisable to devote special attention to some one aspect of geography. The study of an area in detail can clearly be dealt with in a variety of ways, and in planning a syllabus there is ample scope for originality of treatment and for the use of the special knowledge and interests of the teacher. The following examples illustrate different methods of treatment which have been adopted successfully in schools.

(a) *Physical.*—Some teachers have connected the study of home geography closely with natural science. Systematic records are kept of temperature, rainfall, the readings of the barometer, the directions of the winds, the hours of sunshine and the sun's altitude, and, near the sea, the periods and heights of tides. If the results are tabulated and compared with those of other years and with others obtained elsewhere, and the children are taught to draw conclusions from them, it is possible to lead up to a real, if elementary, understanding of such geographical terms as mean temperature, isotherms, cyclones and anticyclones, and to some realisation of the movements of the earth, the effect of latitude on the length of the day, the variation in the times, height, and frequency of the tides. Other teachers, without going deeply into science, have trained their pupils to make a systematic study of the school district in various ways. Maps have been made to show both local soils and the crops grown on them, field by field and year by year. Comparison of these with the contour and rainfall maps brings out the effects of altitude and weather on productions. In some cases attempts have been made to connect the natural features of a district with its geological history and structure. Clearly, however, it is, as a rule, only the rudiments of geology that can safely be introduced into the curriculum of the Elementary School. Rather more can, however, be done in the case of schools in upland and highland and mining districts, or where rocks or

rock-structures are exposed to view on the sides of valleys, in quarries or in sea cliffs or cuttings for roads and railways.

(b) *Economic or Commercial*.—Many teachers are attracted by the commercial aspect of geography; with them the special study of any particular region leads naturally to the consideration of its internal and external trade. Here, however, care must be taken to trace the relations between the economic facts and the underlying physical conditions, and to avoid over-burdening the children's minds with lists of places and products, as such lists are soon out of date and constantly liable to change.

The textile trades of the British Isles as compared with those of the European Continent, Asia, and the United States of America, will provide abundant material for a special course of lessons. The same method of treatment may be applied to the chemical and metallurgical as well as to other groups of industries. The course might show how, as civilisation becomes more complex, industries become more and more specialised, and manufactured goods, as well as raw materials of various kinds, are carried from one part of the world to another. In this connexion particular attention will naturally be given to the imports and exports of the home country and its competitors in world markets.

This side of geographical study necessarily involves the introduction of some elementary principles of economics, e.g., that the price at which an article or commodity can be sold depends, not only on the cost of production but on the relation between supply and demand; that the cost of production involves not only the abundance of raw materials, including, especially for agricultural products, the land required, but also the supply of labour and the cost of conveying the product to the market where it is to be sold.

In work of this kind the teacher should be able to make use of trade reports and returns, such as those issued by the Board of Trade, from which his class may prepare their own statistics; he should point out the effects of competition

on various industries—the sugar trade of the West Indies, for example ; he should trace the changes of population, and the growth of new industries, and of new towns, like Pittsburg or Middlesbrough which follow upon the discovery of mineral wealth. He may also show how since the Great War the established commercial relations of the whole world have changed.

(c) *Historical*.—The provinces of geography and history overlap and neither can be taught without reference to the other. But, while the serious historical study of geography falls outside the work which can be done in the Elementary School, some reference to stages of discovery and early travels should be included in the more elementary treatment, and there are certain historical facts which ought not to be omitted. Chief among these may be mentioned the search for new trade routes to the East in the 15th Century, an enterprise which led to the crossing of the ocean, the exploration of the coasts of Africa, and the discovery of the New World, which altered the economic relations of Western Europe and resulted in the change from land to sea as the chief means of inter-communication.

Nor would any course of historical geography be complete without reference to the expeditions organised in modern times for the purposes of discovery—the “Challenger” expedition, the voyage of the “Beagle,” the various expeditions to the Arctic and Antarctic regions and to the interiors of the great continents, the attempts to climb Mt. Everest and explorations in the Amazon basin.

Of great importance also are the changes which followed the introduction of steam and electrical power, and the progress of mechanical invention in the 18th and 19th Centuries. Among these changes were (a) the shifting of manufacturing centres to the coalfields, (b) the settlement of hitherto unexplored lands, largely due to the increased demand for raw materials and food supplies on the one hand and for fresh markets on the other, and (c) the innumerable improvements in the conveniences of social life.

The results of many of these changes are especially apparent in such regions as the Low Countries, the Alpine area, eastern North America, Egypt, and Asia Minor. More recently changes have been brought about by such factors as the development of the use of water-power and of oil fuels, including petrol, as sources of energy, and the exploitation of new deposits of iron and other ores.

IV. AIDS TO GEOGRAPHY TEACHING.

14. **The Use of Geographical Books.**—In too many schools it is still the custom to make young children read aloud from old-fashioned geography books or "readers." During the first stage it is perhaps best not to use any geographical "reader" at all, unless an exception be made in the case of some of the profusely illustrated books published in recent years. Interest will be added to the lessons by the use of models and specimens, of coloured drawings, and of good pictures or photographs of typical scenes. Later on the illustration of geography may include the collection of picture post-cards, according to some definite principle, the use of lantern-slides, and an occasional visit to a really good exhibition.

Though it is doubtful whether young children learn much geography by reading aloud to their teacher, there is no reason why the teacher should not read aloud to them. This method of instruction has always played an important part in good home training. In schools it presents certain difficulties, but these should not deter teachers from giving it a trial. It is better to read descriptions than to give them, because the written narrative is more likely to be well-expressed, to be based on first-hand experience, and to suggest points for discussion between the teacher and the class.

When children can read with ease and understanding, they should be given books which contain vivid descriptions of places, peoples, animal and vegetable life. Such books, if not overloaded with details, will serve to supplement the oral teaching and the study of maps and atlases. In the

highest classes it is important that the children should have access to a number of books of this kind, some of which will often be in the school library. It is not necessary to read book after book from cover to cover. Some will repay careful reading, others will only be consulted for specific purposes, others again will be dipped into in order to supplement or confirm previous knowledge. All clearly depends upon what the teacher has in view and the stage which his children have reached. In the last year or two of school-life his duty is to guide and supervise their work rather than to teach by word of mouth, to devise and suggest problems or comparisons rather than to work them out. At this stage it is important that children should have reliable text-books, not "readers," from which to get their information ; these need not be large or expensive.

The training of older scholars in the use of books and atlases as works of reference is so important that it may be useful to give a few miscellaneous examples of exercises set for this purpose, which have been dealt with successfully by children in their final year at school :

- (a) With the help of your atlas and a railway guide find out how long it would take you to travel (1) from your home to London, (2) from Newcastle-on-Tyne to Bristol. What towns would you pass through, and what are their industries ?
- (b) From the daily newspaper find out the destination of large steamers sailing from Liverpool and Southampton and the routes to be followed.
- (c) Find out, from books in the school or the lending library, and from maps of any kind, in what parts of the world people live in tents, and why.
- (d) Make a map of the world showing where maize is grown in large quantities. Find out in which natural regions these areas are. Where else would it be possible to produce maize if a great deal more were wanted ?

Great care will be needed to secure that the exercises are presented in suitable sequence ; and more than one lesson

may be required before any one problem of this type can be worked out. It is important that questions asked orally or in writing to test the children's work should not only be on matters of fact but should involve comparisons with other facts or with other parts of the world.

Even in schools where only a minimum of geography can be taught, a stock of books should be kept, from which a child may increase his knowledge and acquire a taste for reading. In large towns, schools will be able to avail themselves of the public libraries, but, if possible, each school should have a small collection of books of its own. In this should be included (*a*) stories with a geographical setting, tales or sketches of animal life, to be read aloud to the younger children; (*b*) books of travel or description for the more advanced scholars; (*c*) text-books of physical, commercial, historical, and practical geography. Librarians are usually willing to suggest suitable books of travel or stories dealing with particular parts of the world or with any geographical topic which the teacher wishes to introduce into his course.

Annual publications like Whitaker's Almanack, the Statesman's Year Book, Reports of Ministries of Agriculture and of Mines, the Statistical Abstracts of the various portions of the Oversea Dominions, and some of the Board of Trade and Consular reports will also supply valuable information, though many of these are, at present, too expensive to be kept up to date in a school library. The daily papers, too, will furnish records of current events in different parts of the world—trade returns, the arrival and departure of ships, and much else of which the teacher can make good use. Many useful publications can be obtained from the London offices of the various Dominions and their separate States.

15. Maps and Atlases.—The purpose of a map is two-fold—the accurate recording of definite facts of position, distribution, and so on, and the presentation of such facts in a manner which enables them to be visualised. The first maps used should be those which the children make for themselves, either from direct observation of a part of

their home district, or as the "free expression" of the setting of a geographical story. Children quickly accustom themselves to the idea of relative position, especially if they have before them at times a map spread horizontally, and with the north of the map pointing in a north direction. Where sufficient space is available a large outline map may be drawn; mountains may be built up in sand, or sawdust, and the positions of the chief towns and railways indicated by small squares of paper and strips of coloured wood.

In the Second Stage the use of maps forms an essential part of the course, and the child may even be led to acquire some notion of the relation between the map and the globe. No formal lessons should be given on projection, though the teacher should be careful to correct—by comparison with other maps, including those on "equal area" projection—wrong impressions as to size, etc., which maps on Mercator's projection may convey. In the Third Stage this use of maps should be developed, and special maps showing winds, rainfall, temperature, vegetation, mineral areas, etc., should be part of the ordinary apparatus of the geography lessons. Isothermal and isobaric lines should, however, be treated not as distinct entities but as marking off areas having different conditions of temperature and pressure. Those selected for study should be carefully chosen for the purpose in view. Teachers have various ways of training children in the use of maps. Some, for example, with the help of a large world map, discuss the means of journeying to distant countries—Egypt, India, South Africa, or America—and trace on the map the course taken by the traveller in order to reach his destination; the same method will serve to familiarise children with the parts of the Oversea Dominions and the regions specially concerned with our food supplies and the raw materials of manufactures. Other maps on a large scale, or of special kinds, are used to show how coasting ships find their way from port to port in the daytime, at night, and in foggy weather; how one race, or one part of a race, is separated from another; why in certain districts intercommunication is so difficult; and why some districts are sparsely and others thickly

inhabited. In studying special maps it is natural to begin with maps of the school district and the home country.

In the Second Stage, and possibly in the latter portion of the First, children may be taught to make use of models in sand, clay, wet sawdust or cardboard, and to compare models with the map. There is, however, a risk of wasting valuable time if the older children construct models which are elaborate or show too much detail. As soon as children have learned to read a contoured or layered map, the use of, and construction of, models should be discontinued. Nor need the whole class be occupied in making them. It is often best to choose three or four children and to set them to prepare models for the teacher's use. Ready-made models, which are designed to display every kind of geographical feature in one imaginary district, are of very little value. It is much better to teach children to make their own models, some of which should be of actual areas known to them, and others of areas chosen as being typical. As soon as possible they should learn to "translate" these models into maps, representing relief by the accepted conventions of line and colour, and, conversely, to visualise such maps as showing relief. As a rule, three colours, to distinguish lowland, upland, and highland, are all that will be needed. In this way children soon come to understand the many types of physical maps in colours, such as "layer" maps.

The meaning and use of contour-lines will need further study, and may be taught in various ways. One of the most effective is to place a model in water and to draw a line on the surface of the model along the edge of the water. By adding more and more water it will be possible to obtain a number of contour-lines at different levels. The use of models will serve to bring out clearly the meaning of such common terms as *land-relief*, *watershed*, *drainage-basin*, *scarp*, *gap*, *straits*, *fiord*, *drowned valley*, *shoals*, and to explain why, with contour-lines, the "V's" point *up*, not *down*, the valleys, and how promontories and islands are really continuations of land-ridges.

Once the children have grasped the idea of contour-lines and colour markings, they should apply their knowledge to Ordnance Survey* and other similar maps on various scales, especially those of districts known to them. These maps are made with contour-lines or with "hachures," or with a combination of the two, and should be contrasted with the older types of maps, still in use, which represent mountain ranges very inadequately by means of worm-like markings.

In making contour-maps it is not advisable always to choose the same set of contour-lines. A set of contours which brings out the characteristic features of South America may serve only to obscure those of Africa, and those appropriate to the structure of Wales may fail to illustrate the counties of the plain.

The next step is the making of transverse sections, like those given in road-books for cyclists and motorists, to correct the erroneous notions about the height of hills and mountains which may be suggested by many maps in common use. Attention should be drawn to the fact that the vertical scale is always greatly exaggerated and the children should be shown the actual slope of a steep hill with which they are familiar. The making of transverse sections will help to bring to light many interesting facts, such as the shallowness of certain parts of the ocean, especially where the great fisheries lie, and to show the relation of great oceanic depths to mountain heights. Even young children can obtain rough sections from their own models, but for more accurate work a contour-map is essential.

The practice of copying maps has now, to a large extent, disappeared. Whatever slight educational value it may have, it is, in itself, of little use in geography; but while

* Teachers will find much interesting and useful information concerning the Ordnance Survey maps of the United Kingdom in the books "A Description of the Ordnance Survey Small Scale Maps," and "A Description of the Ordnance Survey Large Scale Maps" (to be obtained through any bookseller, price 6*d.* each). Ordnance maps for school use can be bought cheaply in quantities on application to the Director-General, Ordnance Survey, Southampton.

this kind of map-drawing has gone, so, too, has the learning of maps, a fact which is much to be deplored. Some teachers supply their more advanced pupils with outline maps; or allow them to make them for themselves by means of a "multiplier," or by tracing, or by the use of a cardboard template which the scholars have cut out. On these maps are represented such details as may be required for special purposes—physical features, rainfall, seasonal temperatures, vegetation, or differences of products and manufactures. The older scholars should have practice in drawing from memory, rapidly and with fair accuracy, sketch maps to illustrate special points and should be able to fill in outline maps correctly. Distances should be calculated from the scale to which a map is drawn, and, conversely, a scale should be constructed from given distances. Attention should be drawn to the value of the lines of latitude and longitude as a means of indicating world-position and of calculating distances and areas. By representing points of special interest, such as distribution of industries, positions of towns, roads, and railways, rainfall and rivers, on transparent or tracing paper,* a series of maps can be made which, by being superposed on the physical map, will bring out the essential interdependence of geographical conditions. This method is suited to the construction of large maps for class use as well as of maps for the children's individual work.

In purchasing wall-maps it should be remembered that the really necessary maps are those coloured to show land relief. Place-names and other details, such as political boundaries and railways, can always be obtained by the children from their own maps and atlases.

Children should also constantly compare the map with the globe. They should notice carefully a few meridians and parallels on both, e.g., the meridian of Greenwich, of Calcutta (roughly, 90°E.), of the "date-line" (180°), of New Orleans (90°W.), as well as the equator, the tropics, and the latitude of London and of their own school.

* "Butter" paper serves the purpose well and is cheap.

In the Second and Third Stages of the school course the interpretation of the map may sometimes be linked with a school journey. If maps or sketches of the itinerary are first provided, and definite problems set, to be solved en route, school journeys enable the children to verify their own deductions, to understand their maps better, to prepare maps to scale from actual measurement, as well as to realise more clearly the working of cause and effect in local geography.

15. **Atlases.**—The selection of the atlas is important. Photo-relief maps, though presenting a graphic representation of relief which is really understood by young children, often exaggerate heights and do not give the definite information required when the children are working out problems and discovering such facts for themselves as the lines of watersheds, the existence of passes, the relative gradients of hills, or the directions of roads or railways. For this purpose orographical, or “layer” maps, as they are sometimes called, are indispensable. In these, different heights above the sea are represented by different colours or different shades of the same colour, and depths below sea-level are similarly indicated. For the older children the atlas also serves as a work of reference, and the information given on the maps should be as full as is consistent with clearness. Separate maps to show selected features will be prepared by the children themselves and from these all superfluous detail will be omitted. Every school atlas should contain an index and the children should be trained to use this with facility.

16. **The Globe and its Use.**—No instruction in geography can be really satisfactory which does not involve frequent reference to the globe; and every school should possess an adjustable globe, at least 12 inches in diameter. Some teachers find one on which outline and elevation are shown in colour most useful; others prefer a black globe on which the outline of continents and some lines of latitude and longitude are faintly traced. Use of the globe is necessary in order to show the general distribution of land and

water over the earth's surface, the comparative size of continents, and the world-position of any continent or other area under consideration. It will also serve to correct wrong ideas arising from the use of maps. Measurements of large distances should always be taken from the globe rather than from the map ; and if this is done, children will be able to appreciate such points as the advantages of " great-circle sailing."

The globe should be adjusted with its axis parallel to that of the earth, and its North Pole directed towards the Pole Star. The inclination of the axis to the horizontal is then equal to the latitude of the school. By repeated observations during the year of a globe thus adjusted and placed in the sunlight, children will be able to understand why days are short in winter and long in summer, and to gain a clear idea of the variations in length of daylight in different parts of the world at different seasons. They will understand, also, why the sun appears to rise and set at different points of the horizon during the year and how the sun's altitude varies at mid-day with the position, north or south, from which it is observed. With large classes some teachers prefer to use a number of small globes, so as to allow every child, or at least groups of two or three children, to observe such points as have just been mentioned for themselves.

17. Educational Visits.—In conclusion, the wise teacher will not neglect any opportunity of adding reality to his teaching by taking his pupils for " educational visits " to hear first-hand accounts of exploration or to see collections of objects of geographical interest in museums or elsewhere. In this connexion, particular attention is drawn to the work which is being done by the Imperial Institute in London, where the Exhibition Galleries are now arranged in such a way as to present vivid pictures of the geography of the Empire as a whole and so to lead children to a better understanding of the Empire and its resources.

CHAPTER V.

ARITHMETIC AND ELEMENTARY MATHEMATICS.

SUMMARY OF CONTENTS.

I. GENERAL CONSIDERATIONS.

Section.

1. **Scope of the Chapter.**—The place of arithmetic in school work.
2. **The Syllabus.**—Variety chiefly possible in the later years of school life. Syllabuses in schools for younger children (up to about the age of 11) should differ very little in content. General agreement on methods desirable.
3. **The Text-Book.**—To be used judiciously.
4. **General Methods of Teaching.**—The approach to a new "rule" should be through a problem within the child's experience. The first examples should only involve small numbers. "Written" arithmetic can begin early. Preliminary explanations by the teacher inadvisable. The needs of the weaker children can be met by dividing the class into sections.
5. **Correction.**—Attention should be devoted both to errors in statement and to errors in working.
6. **Revision.**—Often too limited in character. See also Sections 7 and 9.
7. **"Mental" Arithmetic.**—All arithmetic really "mental." The processes in "mental" arithmetic the same as those in "written" arithmetic. Mental arithmetic of particular value in revision. The writing down of the answers to sums worked out mentally recommended. Undue reliance on written work should be checked. Processes valuable in everyday life should be systematically taught.

Section.

8. **Concrete Methods.**—The term defined. Value of concrete methods in giving definite ideas of the units and quantities which recur in arithmetical calculation. Value in bringing practical explanations home to the children. Value in the introduction and explanation of new "rules." Expensive or elaborate apparatus unnecessary. The connexion of concrete work with other branches of school work (Elementary Science, Geography, Domestic Science): much of this work can be done in the ordinary classroom as part of the Arithmetic course.
9. **Tests of Successful Teaching.**—The power to deal with simple problems. Accuracy and speed in performing the simpler operations. The attainment of accuracy assisted by:—(a) the preliminary making of an approximate estimate of the value of the answer; (b) regular practice in rapid working of straightforward sums.

II. DETAILED SUGGESTIONS.

10. **First Steps in Arithmetic.**—Young children approach number through *counting*, i.e., as a matter of language. Previous experience to be classified and extended by games and occupations. Number teaching in England begins at the age of 5–6. All sound methods of teaching founded on the children's use of actual objects. Various methods of dealing with the "analysis" of number. Simple tables to be built up by the use of concrete material and then learnt by heart. Occupations introducing number as an instrument of measurement. Simple geometrical ideas acquired incidentally.
11. **The Simple Rules.**—The four rules should not be separated. The first sums should be of the easiest possible character. "Carrying" and "borrowing" should be illustrated by practical work. The two explanations of a sum in division. In multiplication the process should begin with the left-hand digit. The multiplication table should be constructed and then learnt by heart. Factorisation of small numbers. Tests of divisibility.
12. **Compound Rules.**—Simple sums can be taken at a very early stage. Reduction should be confined to the simpler cases. Long reductions are only useful as a test of accuracy.
13. **Fractions.**—Advisable to proceed to decimals after dealing with the simplest vulgar fractions. The ordinary school treatment of vulgar fractions too elaborate. The simplest fractions can be introduced at a very early stage through the handling of halfpence and farthings, and the use of

Section.

squared paper or the ruler. First notions of decimals, tenths and hundredths. Division of decimals. The value of the remainder. An elementary acquaintance to be expected of all pupils before they leave school. Practical exercises. Decimalisation of money. Children should be trained to think of decimals without reducing them to the equivalent vulgar fractions.

14. **Ratio and Proportion.**—Commonsense methods to be preferred. Formal definition of the terms out of place. Value of practical illustrations.
15. **Percentages and Averages.**—Percentages necessary for purposes of comparison of fractional quantities. Interest a special case.
16. **Practice and Aliquot Parts.**—Practice a convenient method of multiplication of wide application, which gives children an opportunity of devising easy "short cuts" for themselves.
17. **Square and Cube Root : Logarithms.**—The determination of roots necessary in mensuration. The notions of square and square root can be introduced in connexion with the multiplication table. The rule for extracting square roots to be taught. The use of logarithm tables can be taught to boys about the age of 13.
18. **Commercial Applications.**—Will vary with local circumstances. Most valuable when they have a bearing on the children's after-life and are based upon current figures and the practice of the district. To be related to lessons in household economics, thrift, etc. Interest and investments should illustrate the economic aspect of these subjects. Post Office and other Savings Banks. National Savings Certificates.
19. **Domestic Applications.**—Shopping accounts. Other applications in the economy of the home.
20. **Miscellaneous Problems.**—Should be treated from first principles and not classified under special "rules."
21. **Mensuration.**—Its importance not confined to boys. The teaching should be founded on practical work. The most instructive problems are those which are suggested by practical work.
22. **Drawing to Scale.**—Recent neglect. The use of rulers, compasses and set-squares. Its importance in connexion with other subjects.

Section.

23. **Geometry.**—Simple ideas obtained from mensuration and scale-drawing. Formal geometry out of place. A syllabus necessary. Topics suggested for treatment. Practical applications should be made. The idea and use of similarity. Applications to Geography.
24. **Literal or Symbolic Arithmetic.**—To be introduced gradually. The invention and interpretation of formulæ. Change of subject. Simple equations. Long mechanical algebraic sums to be avoided in the earlier stages. The development of the course. Examples can be drawn from mensuration. Elementary Science.
25. **Graphs.**—Two kinds of graphs. Use for solution of problems in proportion. The interpretation and use of graphs as important as their construction. The straight-line graph. Applications to algebra.

III. WORK SUITABLE FOR CENTRAL AND SENIOR SCHOOLS.

Section.

26. **Boys' Schools.**—The work for the first two years of the course should consolidate the earlier work, and begin geometry and algebra. In the third and later years its extension will depend on the bias of the school. Scope of the work possible in commercial arithmetic, algebra, graphs, geometry. Simple trigonometry may well be taken where scholars stay beyond the age of 14. Solid geometry. The scope of work taken by the boy of 15 need not be limited provided it does not result in superficial knowledge or a poor equipment in the powers of manipulation, computation and analysis of an ordinary problem.
27. **Girls' Schools.**—Why a difference in subject matter and its treatment is necessary. A basis of reality required. Applications to domestic pursuits. Scope of the work possible in commercial arithmetic, algebra, graphs, geometry, trigonometry.

I. GENERAL CONSIDERATIONS.

1. **Scope of the Chapter.**—As many manuals of school methods are within the reach of teachers, the following paragraphs do not profess to treat the teaching of arithmetic in an exhaustive fashion. They involve no fundamental departure from the principles contained in the former

issues of the " Suggestions," though more emphasis has been laid on aspects of the subject suitable for advanced classes and Central Schools.

Ability to apply number to everyday problems is requisite for efficiency in any position of life. It is very important, therefore, that the teaching of arithmetic should be planned to strengthen this ability, and should be associated with matters familiar to the children. To a large extent, the teaching should be concerned with elementary notions of shape, size, and weight, rather than with abstract number ; in other words, it is applied and concrete arithmetic, rather than abstract arithmetic, which has to be taught. It is not to be supposed, however, that the practical side of the subject is to be developed at the expense of the theoretical. There is no opposition between the two ; indeed, if the practical and utilitarian aspects of arithmetic are constantly kept in view, and the interest of the scholars is thus aroused, it will be a far more effective instrument for exercising intelligence.

2. **The Syllabus.**—Variety of syllabus will naturally manifest itself chiefly in the upper part of the school in order to meet widely varying conditions in respect to leaving age, local environment, future occupations and mental capacity and at this stage there will often be a differentiation according to sex. It is not necessary to make here detailed suggestions for curricula appropriate to the various types of Elementary Schools for older scholars. It is sufficient to remark that with the extension of the leaving age and the spread of Central Schools it is no longer necessary to limit too strictly the extent to which the study of Mathematics may be carried in schools where circumstances are favourable. It does not follow that the treatment of the subject will be similar to that adopted in the case of Secondary School pupils of the same age. In the one case the syllabus will be influenced by the fact that the scholar will enter on his life's work at the age of 15 or 16 at latest, and in the other will be governed by the expectation that two or three additional years of school life will remain during which the study of the subject may be further developed.

In schools for younger children syllabuses will differ but little in content, even though there may be considerable variety of treatment and a difference in rate of progress. It is very difficult to say exactly how much knowledge should be expected at a given age, but it is important that there should be a clear objective to be reached at or about the age of 11, when many children are transferred to other schools or begin work of a more advanced character. It is therefore desirable that the teachers of older children should know what amount of groundwork may be assumed at this age.

The practice sometimes adopted of drawing up for the Junior Stage of all schools an agreed minimum syllabus which is also accepted as the examination syllabus for admission to Central and Secondary Schools, is therefore to be commended. Such a syllabus need not prevent individual teachers from extending the scope of the instruction in the case of the more capable scholars, but it should counteract any tendency to attempt too ambitious a course at the expense of thoroughness. It will probably be agreed that a minimum course for this stage should at least include a thorough groundwork in notation; a knowledge of the first four rules applied to money and the ordinary English measures of length, area, capacity, weight and time; an elementary acquaintance with vulgar and decimal fractions, together with simple notions of geometrical form and some skill in practical measurement.

Whether such a plan is followed or not, it is necessary that co-operation between the respective head teachers should exist wherever children are transferred from one school to another. This applies equally to the transference from Infants' to Junior School, and from Junior to Senior or Central or Secondary School, and from the Elementary to the Technical School. Complete co-ordination of syllabuses may seldom be feasible, but at all events much may be done to avoid waste of effort on the part of the teacher and marking time on the part of the child. It is desirable also that in the schools of any area, where interchange of scholars takes place, there shall be general

agreement on the more important points of method, e.g., whether multiplication shall start with the digit of highest or lowest value in the multiplier.

3. **The Text-Book.**—The choice of text-book is important in relation to the school syllabus. The best teacher will wish not only to draw up his own syllabus but also to frame or select appropriate examples for the children to work. Many obstacles stand in the way of the wholesale adoption of this plan, especially when classes contain children at different stages, and a partial reliance on one or more of the published manuals of Arithmetic is almost a necessity, if only to afford the necessary revision and mechanical work. Manuals have been published with the intention of meeting the needs of schools of different types, but there are few schools which are fortunate in finding a text-book exactly suited to their requirements. Naturally a text-book aims at a rather comprehensive treatment of each part of its subject and the task of selecting appropriate examples or applications of the rules presents considerable difficulty, especially when the book is arranged on what is known as the "concentric" plan. Most of the modern text-books, moreover, are written from the standpoint of a school with a fairly high standard of work, and teachers of classes with backward scholars find it impossible to get through the yearly allotment if they set them to work steadily through the manual. For schools in which the mental capacity of many of the scholars is below normal, the task of selecting suitable work from the ordinary text-book becomes still more difficult. If the text-book is divided into seven stages the upper stages may of course be left unattempted, but it is necessary also to omit the more difficult problems, to select sums with smaller numbers, especially in fractions, and possibly also to neglect certain applications of the common rules. What is really needed is a different rather than a truncated course.

4. **General Methods of Teaching.**—In approaching a new "rule" it is important to lose no opportunity of arousing the interest and curiosity of the children by relating it to a

real problem of a kind which might well occur within the children's own experience. It is also advisable, especially with younger children, to introduce the rule by means of apparatus or concrete material. Thus, in dealing with fractions, the children may begin with the question "How can I divide this length of string into eight equal parts?" and thus discover for themselves that two-quarters are equivalent to one-half and two-eighths to one-quarter. They may then determine what lengths of strings are respectively three-quarters, three-eighths, etc. of the original length. The inapplicability of their method to the problem "How can I divide this length of string into three, or five, equal parts?" will then stimulate their inventiveness, and lead them to the general solution of the problem by measuring the length of the piece and finding by calculation what is one-third or one-fifth of the measured length.

As soon as a new process or rule has in this way been grasped, examples involving at first the use of very small numbers should be set to the children to be worked either mentally or on paper. In the case of very young children the help of apparatus for solving such sums may be continued for a time, but care must be taken that reliance on apparatus does not actually impede progress in power of visualisation or of detached thinking. Subnormal children will often need apparatus much longer.

Some years ago there was considerable debate as to the appropriate moment for the introduction of "written" arithmetic, and many teachers in Infants' Schools were led to rely solely upon mental work in the early stages of instruction. Fresh light has been thrown on the question in the last fifteen years through the increasing use of "individual" methods in the Infants' School, and it is now recognised that there is no difficulty in introducing children from the start to the use of the notation of arithmetic as a convenient "shorthand" for the complete verbal statement of the mental operation. So long as the first sums which are attempted are sufficiently easy, and the work is done with the help of apparatus, there is no harm in

allowing the children to write down the "shorthand" statement of the operations which they have performed. At this stage it is unnecessary to prescribe the method of arranging a sum. Any method is good, so long as the arrangement and the accompanying wording clearly express, in the child's own way, the meaning of the operations involved, e.g. the items of a short addition sum may be expressed in a horizontal row just as well as in a vertical column; but that the arrangement should be intelligible is almost as important as that the answer should be correct. Later on, when there is no doubt as to the child's grasp of the nature of the operations, it is easy to suggest by suitable examples the most convenient and concise methods of arranging the various sums.

Whenever the children are likely to attack an exercise successfully, they are the worse rather than the better for all preliminary explanations. Each child should, in the first instance, endeavour to surmount for himself the difficulties of the example, and the teacher's guidance should be reserved for those children whose work indicates weakness. Some teachers allow each child to work at his own rate of progress. While this plan encourages self-reliance and effort, and obviates "marking time" on the part of the better scholars, it may make the proper organisation of oral and practical work less easy. Many teachers, therefore, prefer to divide the class into two or perhaps three sections for arithmetic, each containing children at approximately the same stage, and to meet differences of ability by giving the brighter children more exercises of a problematic kind. This enables them to devote more attention to the less proficient children in the group. In small country schools more than three sections in the class may often be necessary. Another plan sometimes adopted with success in larger schools is to reclassify the scholars for arithmetic.

5. Correction.—In arithmetic, as in all written work, systematic correction is of the greatest importance and children should learn from their mistakes. Written exercises must be scrutinised both in regard to logical statement—

there is no reason why a sum well written out should not be read with as little difficulty as is experienced in reading a piece of well written English—and to accuracy. It is not sufficient to discover merely whether sums are right or wrong. Where errors are due to misunderstanding the question, or to faulty reasoning, or to unsuitable arrangement of the work, the children, either individually or in groups, may need some help from the teacher before they are able to rectify their mistakes, but slips in calculation can as a rule be discovered and corrected by the children themselves. It is not an adequate substitute for individual correction for the teacher to work through all sums on the blackboard regardless of the number in the class who have already obtained the correct answer. Some teachers have found it a good plan to differentiate these two main types of error (inaccurate calculation and faulty reasoning) by two different correction marks. Generally speaking sums inaccurately worked should subsequently be "got right" by the child or children concerned. To work a similar example correctly is not an adequate alternative and to allow the child to leave his work uncorrected is to encourage him to think that it is not necessary to get sums right.

Many teachers, as soon as the children have learnt to work easy sums in the simple rules, show them how to "prove" their sums, and require them frequently to do so, thereby helping them to acquire a valuable habit for after-life, and at the same time reducing the labour of correction by the teacher.

6. Revision.—Revision exercises are too frequently confined to types of examples fairly recently dealt with, and it is not uncommon to find children in upper classes failing—somewhat ignominiously—when tested in work which they appeared to have mastered some two or three years earlier. The remedy is obvious and should be applied in both mental and written work. It is useful on occasion to test the whole school by means of a single paper covering the whole syllabus, in which each child is allowed to do as much as he can and is given as much time as he needs.

7. "Mental" Arithmetic.—All arithmetic is really "mental," but by usage the term "mental" arithmetic is applied to calculations which are accomplished without the aid of objects or writing materials. Writing materials are needed because, without their aid, the various steps in complex calculations cannot be borne in mind; the exact extent to which they should be used is a matter which each teacher must determine for himself; to use them too little is to strain the memory unduly, to use them too much is to exercise it too little.

It cannot be made too clear that "mental" arithmetic and "written" arithmetic do not differ in essence. The processes which are applied mentally are the same as those used in written operations. It is only in a badly taught school that a child can work a sum on paper and cannot do a sufficiently simple sum of a similar type mentally, or conversely, can perform an arithmetical operation mentally and yet be unable to express on paper the same operation, or a harder operation of the same kind.

Mental arithmetic is of particular value in the revision of past work. Thus, a few questions once or twice a week on, say, division of money (e.g., $6s. od. \div 2\frac{1}{2}d.$) or fractions or profit and loss, involving only simple numbers, will serve to keep in mind the various processes which have to be employed.

This aspect of mental arithmetic is one which is too frequently overlooked, partly perhaps because teachers adhere too rigidly to such questions as are given in text-books instead of making up examples to suit their own purposes. Thus it is often the case that the mental sums given to a class at the beginning of an arithmetic lesson consist only of those demanding short methods or special devices for their solution, with a few exercises bearing on the written work which is to be done that day.

In many good schools the children are frequently required to write down the answers to sums worked mentally; in this way the teacher is enabled to gauge accurately the success of his work, and to check the somewhat vague impressions that often result from oral questions put to a

large class. Effort on the part of every child in the class is thus ensured. This practice of writing down answers might well become universal.

Many children are accustomed to rely too much upon written work. This undue reliance should be checked, e.g., a child advanced enough to work money sums on paper should be able to see that 19 farthings are equivalent to $4\frac{3}{4}d.$, and should therefore not find it necessary to "reduce" formally the farthings to pence. The marginal work in exercise-books often contains much which it is needless to write down; this work, therefore, should be closely scrutinised by the teacher, and operations like the reduction which has been mentioned should be disallowed.

Many of the processes in mental arithmetic which are useful in everyday life should be systematically taught. The calculation of the cost of a number of articles at such prices as 1s. 11d. each, the discovery of the price of a dozen articles from that of a single article, the determination of the price of a cwt. from the price of a ton and easy calculations concerning time as measured by the clock and the calendar may be mentioned as examples.

Since the main use which many children will make of arithmetic after leaving school will be in doing quite ordinary shopping sums, frequent practice in these is essential. It is far from unusual to find children, who can decimalise money easily or who can work quickly and accurately according to rule such sums as "two dozen articles at 1s. 11 $\frac{3}{4}$ d. each," failing to give correctly the price of $2\frac{1}{2}$ yards of material at 1s. 10d. a yard, or the change to be expected out of 10s. when 5s. 4 $\frac{1}{2}$ d. is spent.

8. Concrete Methods.—Some ambiguity is often found to exist in the use of the terms "practical" and "concrete" in connexion with arithmetic. On the one hand these terms may connote the use of actual objects or measuring apparatus, and on the other they may merely distinguish sums of certain types from those of a purely theoretical or academic kind. Thus in this sense the calculation of the area of a carpet from dimensions given in a text-book might, but the working of the sum

13 ft. 6 in. \times 7 ft. would not, be called "practical." Again, a child who has to subtract 8 from 17 is sometimes said to be working "in the concrete" if he merely labels the numbers "sheep."

In the present paragraph by "concrete methods" is meant the actual use of material or of instruments for practical work by the child, or for demonstration by the teacher.

In the first place concrete methods can be used to give children definite ideas of the various units and quantities which occur in arithmetical calculations. Exercises in "shopping" will render coins, weights, and lengths familiar; measurements of the schoolroom, the playground, the desks, etc. will give ideas of length; the drawing of square inches, square centimetres, etc. give ideas of area; and the making and handling of blocks and cubes will give ideas of volume. The weighing of a gallon of water serves to connect the ideas of capacity and weight. Such measurements may frequently be preceded by rough estimates, for this practice affords a training which is likely to be of importance in life.

In the second place concrete methods may serve to bring the practical applications of arithmetic home to the children. Thus a group of three or four children may with advantage be set to calculate from their own measurements the number of bricks in some piece of brickwork and its cost at a given rate, or the cost of papering a room with paper of given breadth; lessons of this sort may be suggested by books, but from the nature of the case their introduction must depend upon the ingenuity of each particular teacher.

By concrete methods, again, the various steps in the rules can be introduced, and fresh rules can sometimes be evolved. Emphasis has been laid upon the value of practical work at the earliest stage of teaching each rule, but it must not be supposed that its value is confined to this particular stage. In suitably varied form it should accompany much of the more advanced teaching. Thus the value of a "carried" figure in an addition or

multiplication sum, the denomination of the "remainder" in a division sum, the rule for finding the area of a triangle, the relation between the circumference and diameter of a circle can all be illustrated by practical work. The practical work, if properly directed, may not only introduce rules, but lead the children to formulate rules for themselves.

The apparatus required for the use of concrete methods should not be expensive or elaborate. Many of the articles needed, such as foot-rules, squared paper, etc. are already to be found in any well-equipped school, and many more can be made at small expense by the children themselves. For example, a set of weights can be prepared from lead, or by filling bags with sand, and it is possible to construct a rough balance which will serve for the measurement of weights down to an ounce or even less. Models of the clock face and circular protractors can readily be made from cardboard, and the construction of simple apparatus for measuring angles, either in vertical or in horizontal planes, may be undertaken in the manual workshop or at home. Other pieces of apparatus, such as cylinders, cubes, and cones for practical mensuration, set squares and T squares, can be made as part of a course in handwork.

Some of the concrete work mentioned in the preceding paragraphs is often done in the time allotted to other subjects, e.g., science and geography, but it can profitably be taken in the arithmetic lessons, as it affords a basis of reality which they often lack, and may replace some of the artificial sums involving the use of the same rules.

Practical Mathematics in the upper classes might well go even further so as to include much of the work which formerly constituted the first steps in Practical Physics, e.g., the use of more accurate measuring instruments, such as a measuring wheel, a vernier and a micrometer screw gauge, the determination of areas by weighing, the finding of the volumes of irregular solids by displacement, the determination of densities and specific gravities, the experimental verification of such principles as those involved in the lever, the pendulum and Hooke's Law. Exercises of this type

lend themselves admirably to calculation, and much of the work can be done in the ordinary classroom.

9. **Tests of Successful Teaching.**—If the teaching is really successful the children in all classes will be able to answer questions that do not directly suggest the application of any particular rule. These problems should often involve a combination of two or more rules, but should not contain any difficulty arising from involved language or ideas. They can be introduced into the teaching from a very early stage ; they should be properly graded in point of difficulty, and should not make too great a demand on the children's ability to use high numbers ; they should be questions which children may be expected to analyse into a succession of simple operations. They should often deal with data which the children have obtained for themselves.

In the reaction against a dogmatic treatment of " rules " and an undue insistence on neat and mechanical cyphering, accuracy in arithmetic is sometimes insufficiently regarded. Whatever results may be achieved in the direction of guiding intelligence, the teaching is not really successful unless the older children are able to work examples with precision and reasonable speed. By the age of eleven years or thereabouts accuracy in simple operations should be in great measure automatic. It depends first on a ready knowledge of tables, and secondly upon concentration, but in the case of written work is greatly assisted by neatness of figuring and clear statement.

Two suggestions with regard to the attainment of accuracy may be made :—

- (a) Children should be required to review and check the working of each sum they may work ; and, when possible, they should compare each answer with an approximate answer previously obtained mentally ; e.g., before starting to multiply $19s. 8\frac{1}{2}d.$ by 57 they should realise that the correct answer to the sum must approach but cannot exceed £57.
- (b) Children should frequently be set to work quickly sums which present no difficulty as to method ;

in this way they may be led to combine speed with accuracy, and a valuable opportunity is afforded for revision. The amount of time spent in this practice will vary from school to school, but it should seldom amount to less than one lesson per week.

II. DETAILED SUGGESTIONS.

10. **First Steps in Arithmetic.**—Children make their earliest acquaintance with number through counting, and their first idea of “four” is as one of an invariable sequence of words (one, two, three, four, etc.). The skilful teacher realises that the right use of the words “one,” “two,” “three,” etc., is a matter of language rather than of arithmetic, but that it is necessary in the first place to establish their proper order in the child’s mind, and she will make use of games and other activities in which counting is naturally involved, in order to give incidentally the necessary training in language. Number teaching proper begins later when the words “three,” “four,” etc., are associated with the idea of definite quantity or magnitude. Here again, the natural method of procedure is by means of games and activities in which the child associates the right number of objects with the appropriate word or symbol, or arranges in order of length strips of cardboard or wood whose lengths are one, two, three, etc., units.

Even before they begin to attend school, children have already acquired some experience of numbers, distance, shape, size, weight, and money, although the amount and clearness of their knowledge will vary considerably according to home conditions. It will be the teacher’s aim in the first place to widen and extend this experience by means of games and activities which involve the handling and comparison of real objects, and later she will attempt to clarify early ideas and impressions and gradually reduce them to order. Throughout the Infants’ School the teaching will refer whenever possible to this background of real experience of life.

In English schools the usual practice is to begin the formal teaching of number when the children are between the ages of five and six. The form which this teaching takes in any school depends largely on the general attitude towards infant training which prevails there. This attitude varies widely. At one extreme is the school which retains the traditional view and bases infant training on class instruction. At the other extreme is the school which has adopted the modern view that the child is an individual with his own rate of progress, and bases its training on entirely "individual" lines. Between these extremes lie the great majority of schools in which definite instruction of a group of children is followed by individual practice of what they have been taught. The methods of teaching the first elements of arithmetic vary almost as widely. It is not intended in the present place to describe these methods in detail, or to pronounce in favour of any one of them. Probably no one of them deserves to be placed above the rest. It is quite likely that the success which is sometimes claimed for a particular method in a particular school is really due to the personality of a particular teacher. But all sound methods have this in common, that the teaching is founded upon the children's experience of actual objects; the objects are handled by the children, and not merely seen by them. Visualisation of groups of objects, appreciation of relative size in the case of continuous quantity, and a growing facility in the use of number based upon the plan of grouping by tens, are aimed at. In this connexion, many skilful teachers have shown great ingenuity in devising apparatus to provide the children with sufficient concrete material for their needs, or to meet a definite difficulty which has been experienced in teaching. But it is important to remember that the use of apparatus is only a means to an end, and to guard against the real danger of coming to regard the invention and use of apparatus as an end in itself.

In schools which base their teaching on definite instruction of a class or group of children, it is usual to proceed by stages, first dealing with numbers not greater

than ten, and only at later stages advancing to numbers not greater than one hundred. The early teaching of number in these schools is usually based upon the analysis of numbers from four to ten, and deals more or less exhaustively with each number in succession, illustrating the lesson by a variety of similar objects such as beads (either loose or on a wire), counters, and sticks. Two cautions seem necessary if this method is adopted. In the first place it seems to be a mistake to aim at complete proficiency in the analysis of any number before proceeding to the next, since so much time may easily be spent on one number that the children lose interest in the teaching. In the second place it must be remembered that the power, not only of children but of older persons also, to recognise immediately the number of objects in a set is limited to quite small numbers unless they are arranged in a definite pattern. This has led many experienced teachers to train young children to arrange the objects supplied to them in definite patterns which can be associated with definite numbers, e.g. the "domino" arrangements, or an arrangement which will facilitate computation by two's or five's. To arrange five objects thus :—: : • or : • : demonstrates that the five is composed of "two" and "three," or of two "two's" and "one." Probably at no stage should the objects be arranged at equal distances in a straight line.

In schools where "individual" methods are followed, knowledge of the analysis of number, so far as it is taught in the Infants' School, is acquired incidentally; there is generally no restriction in the size of numbers used; and the range of work covered is often much greater than is ordinarily possible in a school where class or group teaching is the rule. It is found that the children acquire facility in dealing with number as the result of much individual experimenting with such material as counters, sticks, shells, or beads, and can apply it, now to the working of "sums" chosen from a collection carefully graduated by the teacher, now to the working of "sums" invented by themselves and suggested by the material at their disposal. The teacher keeps a close eye on each child's progress, and suggests

new ideas when she judges that the child is ready to receive them with profit. Thus, at the appropriate moment she shows the child how to build up a "table," and starts him on the practical work which is to form the foundation of his knowledge of the multiplication tables.

Some teachers urge that when the number "ten" has been reached, it is best to deal with multiples of ten; others prefer to deal next with the numbers "eleven" to "twenty." In either case the teaching should be based upon the decimal system of notation, e.g., while "six" in the very early stages is regarded as "one" more than "five," "sixteen" should be taken to be "six" more than "ten," and not "one" more than "fifteen," and this meaning of the word "sixteen" should form the basis of the teaching. Thus, if it is desired to add "nine" and "seven" together, the method will be somewhat as follows:—"One" is required to make "nine" into "ten," and this "one" taken from the "seven" leaves "six"; consequently, "nine" and "seven" are equivalent to "ten" and "six," that is, to "sixteen."

After the simple tables have been built up with the help of apparatus they should be memorised. To some extent this may be done even with young children by individual silent study of the table as written out by them or printed on a card, but readiness and facility will hardly be secured without a good deal of oral work in groups or whole classes. The skilful teacher will devise many alternative ways of keeping the whole class active, e.g., the children may answer in turn round a ring and move up or down according to their success in answering. Rapid practice in addition and subtraction of small numbers, and in finding the complements of numbers to make the nearest ten, may be secured in similar ways, e.g., the children may count in turn, forwards and backwards, by two's, three's, four's and so on. Later on, as an approach to money tables, the children may repeat this process with pence; e.g., starting with $3d.$ they may add $4d.$ at a time and change to shillings and pence where necessary, or conversely they may start with $10s.$ and subtract $4d.$ at a time. Children are found to enjoy such

exercises if briskly taken, and they readily acquire a considerable degree of skill. Practice of this kind is the best corrective to the habit of counting on fingers or by means of dots marked round the written symbol, a habit which seriously hinders progress in written arithmetic at later stages.

In addition to this work in number which forms the introduction to the systematic teaching of arithmetic, the wise teacher will also devise a series of occupations which bring into prominence the need for number as an instrument of measurement. Position, shape, magnitude, weight and money values can all be dealt with simply in this way, so that each child at the appropriate stage of development handles, estimates, measures and constructs for himself, and so gains a practical knowledge of the simpler weights and measures.

Many teachers have also realised that it is possible to help children to gain many simple geometrical ideas incidentally in connexion with paper-folding and paper-cutting and other forms of handwork. Children may thus learn to recognise the simpler geometrical shapes such as the square, oblong, triangle and circle and something of their simple properties, e.g., the number of sides and angles in an oblong and the equality of opposite sides, and to recognise right, acute and obtuse angles. This knowledge will make a useful basis on which to build at a later stage of the child's school life.

11. The Simple Rules.—The first sums that are attempted should be of the easiest possible character; they should consist merely of the written expression of operations which are well within the children's mental powers. Exercises of this nature should not be confined to any one rule, and they should be presented in such a way that the children may be left to discover which rule is required. The children should be encouraged to write one or more suitable words opposite each line of these simple sums, e.g., if the question demands the price of two clocks at seven pounds each, the words "cost of 1 clock" should appear opposite the multiplicand, and "cost of 2 clocks" opposite the answer. If the signs

+, −, ×, ÷, and = have been taught, as some teachers prefer, then the children may write :—

$$\text{Cost of 1 clock} = \text{£}7.$$

$$\text{,, ,, 2 clocks} = \text{£}7 \times 2 = \text{£}14.$$

The next stage should consist of sums in the four rules involving "tens" and "units," but neither "carrying" nor the operation that is usually called "borrowing." At this stage there will be need of practical work; sticks or other objects may be used singly and in bundles of tens by the children in working a sum.

A difficulty in teaching the simple rules arises when sums are attempted which require the carrying of figures. Here again, practical work will be found to be of great assistance; thus, the working of a question leading to the addition of 27 sticks to 14 sticks can be exactly illustrated by placing seven sticks and four sticks together and forming from these a new bundle of ten (to be added to the three tens provided by the terms of the question), with one stick over. There are several methods of teaching subtraction, and opinions differ as to their relative merits. It may be said, however, that although the method of decomposition permits of practical illustration, the old method of "borrowing and paying back," perhaps more logically described as the method of "equal additions," is considered by many teachers to produce a greater degree of accuracy.

A sum in division has two possible interpretations. The process of cyphering when 39 is divided by 3 is the same whether 39 things are to be divided into three equal groups, or whether the question is how often a group of 3 things is contained in 39 things. In the first case the divisor is an abstract and the quotient a concrete number, in the second the divisor is concrete and the quotient abstract. The first process is sometimes spoken of as one of "sharing," the second as one of "measuring."

Children may be led to see the essential difference between the two processes by using shells or other apparatus, but they will find much greater difficulty in stating whether a given sum is an example of "measuring" or of "sharing," and there is no need to lay stress on their doing this. It

may be worth while to show them that as a rule the answer to a "measuring" sum should be as a whole number in the quotient together with a remainder of the same denomination as the dividend, while the answer to a "sharing" sum should usually be expressed as a whole number and a fraction, of the same denomination as the dividend; but it is probably safer to deal with the rather difficult question of remainders by an appeal to common sense, i.e., the children should be led to consider what is demanded by the terms of the question. When a remainder is required the answer should be expressed either as "rem. x units," or as "and x units over." The use of a $+$ sign in this connexion should be entirely prohibited.

In the multiplication of numbers of more than two digits, the process should begin with the left hand digit of the multiplier, as this method gives the most important figures first, and is specially useful in multiplication of decimals. In "long" division there is also an advantage in placing the quotient over the dividend. In order to save time later, these methods should be taught from the first, as they are just as easy as the traditional methods.

Children can easily understand the method of constructing the multiplication tables by the repeated addition of a number. This aspect is obscured by the traditional arrangement of the tables in the text-books, viz., seven ones are seven, seven twos are fourteen, etc. If the children are first taught to say: "one seven is seven, two sevens are fourteen, three sevens are twenty-one," etc., the alternative arrangement may be learnt afterwards.

When the method of constructing these tables has been thoroughly mastered, it is essential that they should be learnt by heart. It is scarcely possible to lay too much stress upon this. The children should be able to answer without hesitation, whether they are asked what are seven 8's, how many 8's there are in 56, or what is the eighth part of 56.

Rapid practice in resolving numbers within the limits of the multiplication table into pairs of factors provides an

effective method of revising tables, and splitting numbers into prime factors is a simple extension of this useful practice. The applications of the latter exercise are so numerous and useful, e.g., in "common measures," "common multiples," and "cancelling" that it deserves more attention than it generally receives in Elementary Schools. No very great practice is needed to make children proficient in resolving small numbers at sight into their prime factors.

At this stage, or later as opportunity offers, the simpler tests of divisibility should be taught. For rapidity of work in "reducing to lowest terms" and in "cancelling" children will appreciate the advantage of knowing the tests of divisibility by 10, 5, 2, 4 and 8, and the simple rules can easily be made intelligible to them. The tests of divisibility by 3 and 9 should be taught, but the explanation of these rules is too difficult for most children in the Elementary School.

12. Compound Rules.—When the simple rules are being practised many questions can be framed to pave the way to an understanding of the compound rules, e.g., there is no reason why sums involving feet and inches, for example, or shillings and pence, should not be set at a very early stage, if the necessary data are given. In fact the simple and compound rules are often successfully taught side by side.

Reduction is an unfortunate consequence of our mixed system of units, and too much stress has often been laid upon it. If the common tables of weights and measures have been intelligently taught, simple steps in reduction present no great difficulty and it is seldom necessary to combine all the steps for such reductions as "tons to ounces" or "inches to miles." These reductions are not real, they necessarily involve large numbers and are principally useful as a test of accuracy. Some steps in reduction such as "pounds to ounces" or "pounds to quarters" require long multiplication or division, or the use of factors; the rules for long multiplication and division seldom present much difficulty, but division by factors is less readily understood and some teachers may think it better to omit

If this method of division is used in written work, and the quotient is placed over the dividend, beginners should have little difficulty in fixing the position of the decimal point.

In working concrete examples the value of the "remainder" is sometimes required. Where the division is worked without transforming the divisor and dividend as above, the value of the remainder can be stated without much difficulty, but in cases where the divisor and dividend have been transformed, as in the "standard form" method of division, the value of the new units in the dividend must be clearly understood if the value of the "remainder" is to be estimated, e.g., in the concrete example above, the divisor and the dividend when changed into "standard form" become 6 "tenths of an inch" and 74 "tenths of an inch" respectively, consequently the number of "lengths" is 12, and the remainder is 2 "tenths of an inch."

An elementary acquaintance with decimal fractions may be expected of all pupils before they leave school, but it may be advantageous in certain schools to restrict the work to sums involving not more than one or two places of decimals. The extent to which the teaching of decimals is carried will of course vary largely according to the circumstances of the school, but complicated manipulations of figures are out of place in any Elementary School, and very little stress need be laid upon recurring decimals.

Practical exercises performed by the pupils themselves, will afford many opportunities for the use of decimal fractions. But, since all measurement is of necessity approximate, care must be taken to ensure that calculations based upon measurement are not carried beyond the limits of accuracy possible from the data. Thus, if the sides of a rectangle are only accurate to tenths of an inch, it is misleading to give the area to hundredths of a square inch.

In every case where the metric system of weights is taught, the pupils should acquire their knowledge by handling and using the weights and measures. Mere lip knowledge of the metric system, even of the metre, kilometre, the

gramme and the kilogramme, is of little value, and unless a practical knowledge is given it is useless to spend time in teaching the terminology. Rough approximations such as that a metre is the length of a dual desk, two decimetres is the length of a span, and a centimetre is the radius of a sixpence are well worth making and remembering by the pupils.

Decimalisation of money is sometimes of great service in shortening the work in calculations of a commercial type, e.g., in finding the cost of a quantity given the price per unit, or vice versa; in calculating compound interest and in working sums on stocks and shares.

Various "rules" for converting at sight shillings, pence and farthings into a decimal fraction of £1, are given in text-books and they need not be repeated here. It should be noted, however, that the approximation resulting from counting n farthings as £ $\cdot 00n$, with a correction of $+\cdot 001$ when the number of farthings, after dealing with the last sixpence, exceeds 12, is not sufficiently accurate if the sum of money has subsequently to be multiplied by any number greater than 8, to give a correct result within a penny. In the case of large operations such an approximation may, of course, result in serious error. Since $\frac{1}{4}d. = \text{£}\cdot 001 + \frac{1}{12}$ of $\frac{1}{2}$ of $\text{£}\cdot 001$ (accurately) and therefore $\frac{3}{4}d = \text{£}\cdot 00n + \frac{1}{12}$ of $\frac{1}{2}$ of $\text{£}\cdot 00n$, it is easy to carry out the decimalising process to any number of places required by the particular example.

The converse process of converting a decimal fraction of £1 into shillings, pence and farthings is more frequently useful than decimalisation itself, and when accuracy *within a farthing* only is desired, it is sufficient to take account of three places of decimals without correction of the third place in respect to any subsequent places. If, however, accuracy to *the nearest farthing* is required, account must be taken of five decimal places.

While the scholar should be able with facility to transform a decimal into a vulgar fraction and vice versa, and should be thoroughly familiar with the equivalence of such quantities as $\frac{3}{4}$, $\cdot 75$ and 75 per cent., it is important

that he should be trained to think of quantities involving decimals without necessarily converting them into vulgar fractions. Thus quantities like $\cdot 85$ of a square foot, a gallon, or an hour should have a ready meaning to the child. A valuable aid to the cultivation of this power is the use of diagrammatic representations.

14. Ratio and Proportion.—Sums of the kind rather quaintly called “rule of three” and more correctly styled “proportion,” enter into all courses of arithmetic. More and more, good teachers incline to treat all these questions by commonsense methods instead of by the method which is sometimes, if incorrectly, known as the “method of ratio.” Thus, assuming that the wages of 11 men are £14 17s., and that the wages of nine men are required, the child is no longer taught to write

$$\begin{array}{l} 11 : 9 :: \text{£}14 \ 17s. : \text{£}x \\ \therefore \text{£}x = \frac{\text{£}14 \ 17s. \times 9}{11} \end{array}$$

but, according to the so-called “method of unity,” he is trained to divide £14 17s. by 11 so as to obtain the wage of one man and then to multiply by 9.

If the “unity” stage of the above process is omitted, the method becomes what is called the “fractional method,” and many teachers adopt this method from the first. Thus, assuming that the wages of 6 men are £14 17s., and that the wages of 18 men are required, the child may be led in the first instance to see directly that the wages of 18 men = $\frac{18}{6}$ of £14 17s. It is a little more difficult to see that the wages of 3 men = $\frac{3}{6}$ of £14 17s. When such examples have been mastered it will be apparent that the wages of 11 men = $\frac{11}{6}$ of £14 17s.

Compound proportion is nothing more than the successive application of the processes of simple proportion.

Examples like these can be worked without any reference to ratio and proportion, and any formal definition of these terms is quite out of place where children are concerned. To say this, however, is not to belittle the importance of the idea of ratio, which indeed underlies the comparison of all

quantities of the same kinds. There are many valuable exercises involving this idea which are suitable for children and may lead up to more systematic teaching at some later period. The broad notion of one quantity varying either directly or inversely with another will be gained from a judicious selection of examples in graphic representation; e.g., sums about prices and quantities, distance and time, men and work, may be solved by plotting on squared paper.

Again a good illustration of proportion can be obtained by comparing the lengths of the shadows thrown by two upright rods. The teacher may begin by making the children ascertain that the shadow of a 6 ft. rod is twice as long as that of a 3 ft. rod, three times as long as that of a 2 ft. rod, and so on, and he may lead them to infer that in a general way we can obtain a comparison of the two heights from a comparison of the two shadows. Possibly he may sum up the results of his teaching by saying that the length of the shadow is proportional to the height of the post, but he will not attempt to say what proportion is or what it is not. As in other cases the definition can convey no real meaning until the child's mind has become saturated with many examples of the thing or idea defined.

15. Percentages and Averages.—The necessity for reducing fractional amounts of a quantity to the same denominator in order to compare their values should lead children to appreciate the advantage of choosing 100 as the standard denominator and so expressing a fraction as a percentage. The term "per cent." is in everyday use, and the need for calculating percentages is frequent. Children, therefore, should be trained to express one length, sum of money, etc., as the percentage of another length, sum of money, etc., and to evaluate a given percentage of a given quantity. The calculation of "interest" is, of course, only a particular adaptation of percentage.

The term "average" is difficult to define, but it is in very general use, and children should become familiar

with its application. Exercises which will introduce it and illustrate it suggest themselves readily to all teachers ; children may be trained to calculate the average attendance of a class, the average score of a cricketer, etc.

16. Practice and Aliquot Parts.—Practice is a convenient and practical method of multiplication, originally brought into use to enable business calculations to be made with greater ease and rapidity. As a highly convenient method of multiplication, capable of application in all cases, it should not be restricted to finding costs with £1 as unit. It has the advantage of providing scholars with opportunities of devising short and easy cuts for themselves, and the selection of the unit and the grouping of parts should in the first instance be left to them. The method may sometimes be usefully applied to the multiplication of vulgar and of decimal fractions ; to the calculation of simple and compound interest ; to finding a percentage of a given compound quantity ; to problems involving rates, dividends, and so forth. It affords an easy method of constructing ready-reckoners, including discount and interest tables. The general application of the method to compound rules requires a knowledge of the “ aliquot parts ” of all kinds of quantities, and scholars should have sufficient practice to enable them, with confidence and rapidity, to split any quantity into convenient aliquot parts and into “ parts of parts.”

17. Square and Cube Root : Logarithms.—It is often necessary in calculations arising in mensuration to determine the square root of a number. The notions of squares and square roots may be given at an early age : when children have learnt that $7 \times 7 = 49$ it is easy to teach them the idea and notation of $7^2 = 49$ and $\sqrt{49} = 7$. The squares of all numbers up to 16 at least should be gradually committed to memory and the square roots of these squares can then be written down at sight. Practice should also be given in finding the square roots of numbers which are readily resolvable into factors, and scholars who have started graphs may also be set to construct for a given

range of numbers a square root curve from which intermediate readings can be determined.

In the upper classes of many schools it will be desirable to teach the rule for the extraction of square roots. The process can be easily demonstrated by a diagram, and little difficulty will be experienced by the scholars in learning the general rule. When the mensuration of the triangle is being dealt with, the values of $\sqrt{2}$ and $\sqrt{3}$ to two places of decimals may conveniently be taught.

The notion of cube root and the recognition of the cube roots of cubes of the smaller numbers may be dealt with in a way similar to that adopted in the case of square root, but the rule for extraction of cube roots should not be taught. Scholars who have arrived at the stage when cube roots of more difficult numbers are required should be trained to use Tables of Logarithms.

There is no reason why logarithms should not be taught to boys at about the age of 13 years, even in ordinary Elementary Schools. The facility which is soon gained in the use of tables will be of value to those who continue their education in Evening Technical Schools. The saving of time involved in dealing with long mensuration calculations enables more of such calculations based on actual measurements to be undertaken. Before the use of the tables is taught scholars should be familiarised with the use of indices, which in the case of positive whole numbers should be introduced at first merely as a convenient notation. The teacher should elucidate the various steps in the use of the tables by simple reasoning ; he need not attempt to give any formal proof.

18. Commercial Applications.—In the preceding paragraphs all the common rules of arithmetic have been dealt with in turn. Most schools will doubtless aim at giving their pupils, before they reach the age of 14 years, at least a simple understanding of each, but the extent to which applications of the rules are dealt with will vary considerably according to local circumstances. Sums connected with buying and selling must necessarily form a considerable portion of any course in arithmetic, but a good many

commercial applications, which formerly were often regarded as separate "rules" may well be omitted. It is unnecessary in the ordinary school, for example, to deal with "Stocks and Shares," "Foreign Exchange," "Partnerships," True Discount and Compound Interest, except in the simplest form, though these topics would be quite appropriate in Advanced Classes with a commercial bias.

Careful attention should, however, be paid, especially in the upper part of the school, to types of sums which have some bearing on the children's after-school life. Calculations will be specially valuable if based upon data supplied by the children which incorporate current prices of commodities and those methods of paying wages prevalent in the surrounding district. Many teachers will doubtless have friends closely associated with the industries of the school neighbourhood from whom they will be able to obtain information as to prices, costs, rates of pay and the types of calculation generally employed, while market reports and advertisements in the local newspapers may also furnish much useful material of the same kind. Regard should also be had to true economy and the examples chosen should illustrate such facts as the dearness of buying in small quantities, the false saving sometimes associated with cheapness, and the utility of insurance of various kinds. Exercises might be given on local rates, proportion of rent which is paid in lieu of rates, and on the payments which have to be made by employers and employed in respect of Pensions and of Health and Unemployment Insurance. Bills such as the parents may be expected to make out or receive will be useful and great importance should be attached to teaching the children how to keep simple accounts.

Such arithmetic as is suggested in the preceding paragraph should be taken in conjunction with lessons in simple household economics, thrift and similar subjects. Its connexion with the practical subjects, gardening, handwork, needlework, cookery, housecraft, etc., some of which are now included in the curriculum of every school, hardly needs emphasising.

Exercises dealing with interest and investments should illustrate their economic aspect. It is useful, for instance, for the children to know that the rate of interest depends on the nature of the security and that high interest often betokens an unsafe investment. Examples involving usurer's interest charged on small loans for short periods will bring home the uneconomic nature of such borrowings. The rates of interest obtainable from Post Office and other Savings Banks, and upon National Savings Certificates should become familiar and be thoroughly understood, as also should the discount systems practised by co-operative and other stores.

Many of these applications will be found suitable for all types of school and for both sexes, while others may depend for their suitability on the sex or mental capacity of the children, the environment of the school and the circumstances and occupations of the parents. The capable and ingenious teacher will select those which serve his special purpose best and so give to his teaching a valuable and practical trend.

19. Domestic Applications.—While all children should be taught to keep simple accounts, girls ought to pay special attention to the detailed accounts accompanying shopping and housekeeping. Much of their arithmetic also can, as outlined above, be based upon data obtained from their work in practical subjects. Mensuration is involved in cutting-out, scale-drawing in the adaptation of patterns, and proportion in the use of recipes. The capacity of various kitchen utensils and the weights of different materials which will fill them can be ascertained by trial and the results may be tabulated for reference. Such tasks as the planning of the weekly, monthly or yearly expenditure of a family, an enquiry into the cost of decorating and furnishing the rooms of a house, or the detailed estimate of outlay during some projected holiday may provide connected work for series of lessons and will arouse interest because of their reality.

20. Miscellaneous Problems.—Many text-books on arithmetic devote special sections to particular types of

problems concerned with partnerships, time and work, pipes filling cisterns, races and games of skill, clocks, mixtures and the like. Some of these are of academic interest only and none of them involves any new principles. As a rule it will be best, if they are taken at all, to treat them simply as problems and not to teach any special methods of solving particular types. In many instances they are best worked by algebraical or graphical methods, and to show children how to solve them by arithmetic savours somewhat of the teaching of clever tricks.

21. Mensuration.—The applications of arithmetic to lines, areas, and volumes, applications which generally come under the term "mensuration," are very important. Calculations as to lengths, areas and volumes have to be undertaken in every walk of life, and they also have bearing on the economy of the home. Although chiefly because of the greater amount of time available for the subject, mensuration is commonly developed more in Boys' Schools, there is no reason to regard it as unsuitable for girls: certain common applications such as "papering and carpeting" sums are even more appropriate in their case.

The teaching of the rules and formulæ of mensuration ought to be founded on the children's practical work and on drawings and measurements made by them. Thus by means of paper-cutting scholars may verify or discover for themselves the relation between the area of a triangle and that of the rectangle on the same base and having the same altitude, and may thus arrive at the formula for the area of a triangle. The relation between the volume of a cone and that of a cylinder having the same base and the same height may be verified by using a cone which fits accurately into a cylinder. The contents of the empty cylinder may be ascertained by means of a graduated measuring jar and compared with its contents after the insertion of the cone. Or the weights of sand which the cylinder will hold before and after the insertion of the cone may be compared, or, again, the volumes of water which solid cones and cylinders will displace may be compared, or the weights of

accurately made cones and cylinders of the same metal may be compared. In similar ways the relation between the volume of the sphere and that of the circumscribed cylinder can be verified.

It would be too much to say that all mensuration problems should be based on data which the children have obtained for themselves, but the most instructive problems are undoubtedly those suggested by the children's practical work. Plenty of material for mensuration problems is always forthcoming. The apparatus required for these exercises will be simple, and much of it is already to be found in the majority of schools. The classroom will furnish many suitable objects, and it is easy to obtain such things as metal washers and nuts, small pieces of piping, plates, and balls, so that each child may have something to measure for himself. It may be noted that the provision of callipers will widen the range of measurement which can be made with a reasonable degree of accuracy. Some measurement of larger objects out of doors can be done by most schools, and in the country such things as stacks, sheds, clamps of potatoes, and timber, will afford excellent practice.

22. Drawing to Scale.—Scale-drawing, easy ruler and compass constructions, and the drawing of simple plans and elevations, are matters which will naturally arise in connexion with mensuration, handwork and geography, and can be conveniently carried on concurrently with them.

It is probable that these types of drawing, which at one time may have been overdone, are now unduly neglected. Apart from the training they give in themselves they are of value in leading up to a somewhat more reasoned kind of geometry (see Section 23) and form a very useful groundwork for boys proceeding to a Handicraft Centre.

Simple scale-drawing may begin early in the junior classes in connexion with handwork or the construction of plans of rooms and playgrounds, and will at first involve the use of the ruler alone. Set-squares and compass will be used later for more accurate work and more difficult scales and easy ruler and compass constructions will be

introduced. Thus by the time a child is about 12 years old he should be able to use instruments correctly : to construct with their use angles, perpendiculars, parallels : to construct simple plane figures (e.g., rectangle, triangle, circle, the easier regular polygons) and to draw easy figures to scale. This work may be developed to some extent later, e.g., to include further constructions such as the bisection of lines and angles.

At this age, ideas of plans and elevations, which will have arisen in connexion with geography, model drawing and mensuration, can usefully be extended and made more definite by developing them in connexion with handwork. As a necessary preliminary to the drawing of a plan and elevation, the scholar should be taught to make a simple hand sketch from his own measurements. By the time a child leaves school there is no reason why he should not be able to draw plans and elevations of simple solids in easy positions and to draw some of their easier sections, such as are needed in Handicraft Centres.

23. Geometry.—The work dealt with in the preceding paragraphs on mensuration and scale-drawing is essentially geometry, i.e., "earth measurement." A child who has been through such a course will have acquired a foundation of geometrical notions and a simple knowledge of shape. This knowledge is also extended by many of the exercises in handwork which the school provides. How far geometrical reasoning should enter into the geometry course of the Elementary School, and to what extent a systematic treatment of the useful properties and relations of geometrical figures should be attempted, must now be considered.

It is clear that formal geometry, i.e., the sequence of definitions, postulates and propositions of Euclid or recent alternative sequences, is unsuitable for a child's first reading of the subject, and will, therefore, not find its way into the ordinary Elementary School. Such knowledge of the more important geometrical facts contained in the first six books of Euclid as is desirable at this stage may best be obtained through practical work, and almost from the first this work can be made to serve a fuller purpose, if the

teacher bears in mind that the items of geometrical information bear a relation to one another and are not simply useful and interesting in themselves. Further, the making of accurate drawings may lead to the discovery of geometrical relations of general application.

Whether the course in geometry claims separate periods on the time-table or is taken incidentally with mensuration and arithmetic, it is desirable that the syllabus should show what geometrical facts are selected for inclusion. Some facts will, of course, be common to all schemes, but the inclusion of others will be dependent on local conditions and individual preferences. The possibilities which the subject affords for training in reasoning and in logical statement should be borne in mind. In the early stages there will be no attempt at a memorised proof, but the scholar should be trained to state the steps of an argument in concise, if informal, language. Formal definitions are out of place, but precision should be given to ideas by teaching the correct use of a few technical terms.

The following topics are suggested as covering the main body of material from which selection may be made. The order is not intended to indicate the order of study or of importance: this will depend largely on the method of treatment.

- (a) Lines, angles and parallels.
- (b) Simple geometrical forms and constructions, and scale-drawing.
- (c) The angle-property of a triangle and its extension to other figures.
- (d) Symmetry and similarity.
- (e) Measurement of area and volume.
- (f) Theorem of Pythagoras.
- (g) Angle-properties of circles.
- (h) Simple solids. Plans and elevations.

Schemes of work will probably vary more in the extent to which each of these topics is developed than in the number attempted. For example, topics (a) and (b) will arise naturally in any course of work with rulers, protractors and compasses and will therefore be

dealt with, at least in simple form, in all schools. Many teachers will, however, find it possible after such a course of practical work, to lead the scholars to formulate the conditions necessary and sufficient for the construction of figures, triangles, in particular, of given size and shape (or shape only) and hence to deduce the conditions for the identical equality of two triangles. Teachers interested in the more theoretical aspect of the work can make this the starting-point for much reasoned problem work, such as would be appropriate in the case of Central Schools or Advanced Classes where school life is prolonged.

Whenever possible the work in geometry attempted in the Elementary School should be given a practical application. Constructions of an academic and sometimes complicated nature, such as inscribing three circles in a triangle to touch one another, were formerly common in Elementary Schools. They are of little value from the geometrical point of view since they cannot be done without detailed instructions, the reasons for which are seldom understood by the scholars. Their chief merit was the practice they afforded in the accurate use of drawing instruments, a power to which great importance should still be attached. Equally good practice can, however, be obtained in work which has a definite purpose; thus, the construction of a simple geometrical design for the decoration of some piece of handwork undertaken by the scholar may afford an excellent exercise in the use of ruler and compasses. Many good examples of geometrical construction arise in the setting out of the handwork in cardboard and wood. For instance, it is often necessary to bisect an angle, to find the centre of a circular arc, or to construct a figure such as a regular octagon; it is therefore important that the work in geometry and handwork should be suitably co-ordinated.

Perhaps the most useful of all applications of geometry are those which depend on a knowledge of the properties of similar triangles, i.e., problems on "heights and distances." When the similarity of equiangular triangles has been grasped it will be evident to the scholars that the height of

a flagstaff can be obtained by comparing the length of its shadow with that of the shadow of a post of known height. Thus, a simple method for determining the height of inaccessible places is obtained. Further exercises of this nature are possible if some home-made apparatus for measuring angles in horizontal and vertical planes is devised.

The applications of arithmetic and geometry to the making and reading of plans and elevations are interesting and instructive, and they are likely to form a valuable aid to the teaching of geography. Position may be dealt with, in the first instance, by representing on a plan the relative position of three or more objects which lie close together on the floor of the schoolroom. Later on, their positions relative to the walls of the room may be considered, and similar exercises involving greater distances may be taken out of doors. For example, two base lines may be set out and the distances of various objects therefrom measured by the scholars. The objects chosen may, for instance, be stakes at the corners of an irregularly-shaped field, or along the edge of a pond. The scholars may represent the results of their measurements on squared paper, and thus plot out the outline of the field or pond, and by counting squares within the outline they can then ascertain the area. Another exercise in out-of-door work is the measurement of the area of a field by the ordinary field-book method. Nor need exercises of this type be confined to linear measurements; the directions, relative to the points of the compass, of the imaginary lines drawn from the observer to various objects may be ascertained, first roughly by eye, and later, with more accuracy, by the use of a home-made plane-table. It has been found possible in some Elementary Schools for the more advanced scholars to accomplish a rough survey of a suitable district in the neighbourhood of the school. Often where a complete survey is impracticable, it may be possible to devise useful exercises in map-making and map-reading, e.g., the calculation of the distance between two inaccessible points.

24. **Literal or Symbolic Arithmetic.**—In nearly all schools algebraic symbols and notation may be introduced with advantage, and the use of literal symbols instead of figures may aid the teacher to widen the outlook of the scholars and to elucidate the connexion between the answer and the data of a question. Since the abstraction involved in the use of symbols presents difficulties to children such work should be introduced gradually. To begin with, letters should only be substituted for numbers in types of sums that have been mastered, and the most suggestive letters should be selected, e.g., “S” for the number of shillings. The scholars may also be trained to interpret and invent simple formulæ for expressing general statements. Many examples of what can be done can be given, e.g., if the daily wage of a man be S shillings the scholar should see that the wages of M men for W weeks of six days each amount to 6 S M W shillings, or to $\frac{6SMW}{20}$ pounds. Similarly, formulæ to express areas of plane figures and volumes of solids can be discovered and applied. It must, however, be remembered also that the scholar will benefit more from the invention and interpretation of formulæ than from their application, since the latter process may easily be and remain merely mechanical. By this time the use of literal symbols will have begun to assume greater reality in the scholar’s mind, and somewhat more difficult symbolic work can be introduced. Exercises in “changing the subject of a formula,” according to the data, are also of considerable value, e.g., in the formula for simple interest. This work will lead on to simple equations and the solution of problems by their use, and the scholar will begin to see how the working of some of the arithmetical examples he has done in the past can be simplified by the employment of symbols.

The use of letters as symbols for generalised numbers in arithmetical processes in the manner which has been indicated should also form the introduction to algebra in those schools where time and opportunity permit of a more formal treatment of the subject. The introduction at the earlier stages of long meaningless mechanical sums in addition,

subtraction, removal of brackets, etc., is to be avoided, and multiplication and division may be deferred until the notion of negative number has been grasped.

The range of work outlined above probably represents all that the average Elementary School will be able to cover. There may, however, be some schools which can proceed further. In these schools the course will probably include linear simultaneous equations, easy factors, and quadratic equations, with the simple manipulative work involved. Difficult questions in multiplication and division, and all questions, except the very simplest, on highest common factor, least common multiple, and brackets can safely be omitted.

In both the introductory and the later stages of algebra many useful examples can be obtained from mensuration and elementary science, e.g., formulæ for areas of parallelograms and circles, the relation between the sides of right-angled triangles of different sizes but of the same shape, the extension of a loaded spring, levers and pulleys, pendulums, the bending of flexible rods, the connexion between Centigrade and Fahrenheit readings.

25. Graphs.—The drawing of graphs is now a very general exercise in schools. These geometrical illustrations are of two kinds. In the first place, there are the charts which form a convenient means of recording quantities which fluctuate in an irregular way, e.g., the attendance of the school, or the temperature of the classroom, or the price of eggs at different times of the year. In the second place, there are the graphs which express in a diagrammatical form the relation between two connected quantities. Thus it is easy to construct a diagram which may be used as a ready-reckoner, e.g., one which will give the square or square root of any number within a given range, or the relation between the side and area of similar triangles, or the relation between "cost price" and "selling price" for any particular percentage of profit.

Graphs may also be used for the solution of problems in proportion, e.g., problems about trains passing or overtaking

one another. As examples of graphs illustrating inverse proportion, the scholars may plot the number of revolutions per second made by a pulley connected up to another pulley of varying diameter, or may show how the time taken to dig a ditch varies with the number of men employed.

It must always be borne in mind that the interpretation and use of graphs are as important as their construction. Thus scholars will be led to see that in addition to the ready picture they give of a sequence of events, they are of importance in giving, by interpolation, information not afforded by the data or information as to the rate of increase of a varying quantity (e.g., in a graph showing the distance a train has gone at different times, the greater the speed of the train the greater will be the slope of the graph), and so on.

It will also soon be seen that any question of a given type has its typical graph, for example, a straight line in the case of a question involving direct proportion. Conversely, the graph may be used to suggest the law connecting the quantities plotted. Thus graphs plotted in elementary science lessons connecting effort with weight in a system of pulleys, or the extension of a spring with the attached weight, should lead scholars to suspect a direct proportionality in those cases, and the next step will be to write down the formula showing the proportionality, the constant factors having been ascertained from the graph.

In some cases it will be found possible to link up the graph work to a greater or less extent with algebra. Thus it will be learnt that a particular problem may be solved arithmetically, or by simultaneous equations, or graphically, and that a graph of two straight lines can be used for the solution of simultaneous equations. It will come to be recognised in this kind of way that an expression of the first degree in x is represented in a graph by a straight line, and that a quadratic expression is represented by another typical graph.

III. WORK SUITABLE FOR CENTRAL AND SENIOR SCHOOLS.

26. **Boys' Schools.**—In schools or classes for selected scholars where a three-year or a four-year course is provided from the age of 11 to 12, the scope of the work indicated above is capable of further extension. These schools will often have a definite bias, but it is desirable that during the first two years of the course the work should be sufficiently general to afford a sound foundation for any more specialised syllabus. During this period the ground covered previously should be consolidated, the remaining "rules" of arithmetic should be completed, and speed and accuracy should be looked for in an increasing degree. A beginning should also be made in geometry and algebra on the lines suggested in Sections 23 and 24. In the third and later years of the course the selection of subject matter will naturally depend on the bias of the school. Practice in ordinary arithmetic will need to be kept up, but further extensions will arise principally in connexion with more difficult mensuration sums or with commercial applications. Schools where instruction in Principles of Commerce is given may usefully go much further than the ordinary school in dealing with commercial applications such as Discount, Foreign Exchange, Compound Interest, Annuities, and Present Worth. Data for these calculations may be obtained from the daily press, market reports, and statements of national, local and company finances. To facilitate calculation, the use of logarithmic tables, and in some cases the slide rule may be taught at the beginning of this period.

In algebra, the scholar, having gained facility in the use of literal symbols, the manipulation of formulæ and the solution of simple equations, will be introduced to "directed numbers" and will proceed to the solution of quadratic equations. Useful examples of factorisation will be dealt with, together with easy manipulation of linear and quadratic expressions. A simple treatment

of the theory of indices may well be taken in connexion with logarithms. The idea of "series" should be given because of its relation to the physical world. Especially in Schools with a commercial bias, arithmetical and geometrical progressions should be studied because of their bearing on increments of salary and on compound interest and repayment of loans.

The drawing of graphs is of no less importance in schools of a commercial type than in those of an industrial type and many good examples will arise from the course in practical science. The scholars may be shown that rate of increase and maximum and minimum values of an expression can be found from the graph, and they may use graphs for finding approximately the roots of equations which cannot be readily solved by algebraic means. In some schools the most advanced scholars may deal with the graph of a function as an introduction to the calculus which they may have occasion to learn later.

Extensions in the field of geometry may lie either in the direction of a more formal course, or may consist of practical applications of plane and solid geometry, with such simple deductive reasoning as is suggested in Section 23. Simple problems involving the conception of geometrical loci may be introduced, and the rules for the construction of the parabola, hyperbola and ellipse, treated as loci, may be explained and applied.

All "selective" schools keeping scholars beyond the age of 14 may well teach the simple trigonometrical ratios, and the use of tables to solve height and distance problems involving right-angled triangles, while some may proceed to the trigonometrical solution of any triangle. It will, however, as a rule, be sufficient to teach the "sine rule" and the cosine formula for the solution of any triangle given its three sides; all other cases may be solved by dividing the triangle into two right-angled triangles. trigonometry may also be applied to simple cases of resolution of forces in mechanics.

The geometry of the sphere is worthy of special attention because of its bearing on geography; the construction of a sinusoidal map is well within the comprehension of pupils in the upper forms of a Central School. Some schools may also attempt easy navigation problems. Solid geometry will include plans and elevations of the geometrical solids in easy positions and their simple sections. Simple practical exercises involving the development of regular solids will lead to more difficult exercises such as the development of the truncated pyramid and cone. When the pupil has made some advance in the subject of "projection," more difficult exercises involving the interpenetration of solids might be attempted in sheet tin. Some of the abler boys might construct in sheet tin such objects as scoops, sugar scuttles, water cans, kettles, Nicholson's hydrometers and funnels. Many schools with an industrial bias also provide an elementary course of machine or architectural drawing which gives further point to the work in solid geometry and with which it should be suitably linked up. The principle of the vernier callipers may be explained and the instrument used in the measurement of machine parts. Hand sketches should be followed by dimensioned ruled drawings, and each boy allowed to make a "blue-print" of one of his ruled drawings.

Other schools, again, may find it possible to go a fair way into the mathematics associated with a course of experimental mechanics.

In general, it may be said that the good teacher of mathematics need not hesitate to take the intelligent boy of 15 outside the beaten path if the steps are made intelligible from first principles and if the work is given a practical application within his ken. The chief value of such work is to give the pupil a glimpse of what lies beyond and thus to invest his routine work with a new meaning. In this way a taste may be created for further study, but it would be an ill service to their further instruction if, as a result, those boys who passed on to Technical Schools were found to

possess a merely superficial knowledge and to be poorly equipped in the power of neat manipulation, accurate computation and simple analysis of an ordinary problem.

27. **Girls' Schools.**—Certain difficulties of conditions, interests and ability necessitate differences in the selection and treatment of the subject-matter for more advanced courses in mathematics for girls and boys respectively. In the first place less time is generally available for the subject in Girls' Schools and the effect of this is accentuated by the somewhat narrower scope of the average girl's out-of-school experience. Moreover, as girls have no concurrent instruction in woodwork or metalwork, and as they frequently study biological in place of physical branches of science, they meet fewer concrete applications of geometry and miss many opportunities for practice in measurement. It should not be assumed, however, that those aspects of the physical world and of social life, which are better understood by persons who have had a mathematical training, are necessarily outside a girl's interest. Much of the girl's difficulty in grappling with a mathematical problem may be due to want of familiarity with its subject matter and inability to visualise the conditions involved in the problem. More responsibility is, therefore, thrown on the teacher of girls for providing a basis of reality for their mathematical work. The fact that the mathematical course for girls in Central Schools and Advanced Classes is at present frequently academic rather than practical may be due to the more limited opportunities of many women teachers and to the difficulty which they themselves have of relating their mathematics to experience. A purely academic course, with its demands on powers of abstract reasoning, is, however, scarcely suitable for scholars of either sex at this stage.

Certain special applications of mathematics to the domestic pursuits which will occupy so much of the life of the majority of their pupils will suggest themselves to all teachers of girls. Domestic arithmetic and the parts of geometry and mensuration applicable to "papering and

carpeting," to the planning of a house, to needlework design, and to other handicrafts for girls are very important, but they are for the most part elementary and are too narrow to provide in themselves a suitable advanced course for intelligent girls of 13 to 15 years.

It is suggested therefore that in framing an advanced course the teacher might select such parts of the subject-matter indicated in the later sections of this chapter as appear to be most suitable for the circumstances of the schools and can be dealt with in the time available. Many schools will doubtless develop most the applications of arithmetic and algebra which arise in connexion with the study of commerce and of citizenship as being of equal value to the older scholars of either sex, but little, if any, of the remainder of the work suggested in these paragraphs need be ruled out as definitely unsuitable for girls, if the necessary practical treatment is given.

Geometry together with drawing to scale and mensuration should be an important part of the training. Commonly these topics are relatively neglected in Girls' Schools, or if geometry is taken it is sometimes of too theoretical a kind and omits altogether such interesting applications as finding heights and distances by practical measurement. The fact that girls miss the scale-drawing and "plan and elevation" work of the handicraft course should be a reason not for doing less but for doing more of such work in mathematics, and the same remarks apply to the practical measurement which girls miss through not studying elementary physics.

The introduction to algebra suggested in Section 24 arises naturally from the arithmetic course. The warning that the inclusion of much purely manipulative algebra is not justified unless the subject is to be developed to an advanced stage, is specially to be heeded in framing courses for girls. This branch of algebra is often overstressed, partly because it appears easy and partly because of possible examination requirements.

Graphs (see Section 25) is a branch of mathematics which has a considerable claim to be included. The appeal to the eye as well as to the mind often holds the attention of girls when prolonged mental concentration is difficult for them, and the range of illustration is unusually wide.

The interesting applications of trigonometry make this subject in many ways a profitable development from an elementary course of geometry, but here again the manipulative side is often overstressed and is too apt to become unintelligible and unproductive.

CHAPTER VI.

THE STUDY OF NATURE.

SUMMARY OF CONTENTS.

I. GENERAL CONSIDERATIONS.

Section.

1. **General Aim of the Teaching of Science.**—To awaken interest in plant and animal life and to make simple investigations of common phenomena.
2. **Books and Reading.**—Books cannot take the place of observation and experiment, but are useful when interest has been aroused.

II. THE INFANTS' AND JUNIOR STAGES.

3. **Infants (5-7 Years of Age).**—The purpose of the teaching. The approach through children's interests. Nature work. Nature calendars. What to do in winter.
4. **Juniors (7-11 Years of Age).**—The purpose of the teaching. Definite responsibilities for the care of plants and animals. Observation of plant and animal life. Note-books, drawing and modelling. Lessons on inanimate nature; their aim; methods; common mistakes.

III. THE SENIOR STAGE.

5. **The Content of the Senior Course (11 Years and upwards).**—The minimum content. Necessity of experimental work.

Section.

6. **Schools with a Practical Room, without Available Free Space.**—Furniture. Equipment. Methods of Work. Demonstration. Discussion. Making of apparatus. Suitable problems for investigation.
7. **Schools without a Practical Room and without Available Free Space.**—Form of the work. The children's co-operation. Difficulties and suggestions for overcoming them.
8. **The Further Study of Plant Life.**—General principles. The scope of the work. The plant as a living organism. Field work. The plant table. What can be done in town schools.
9. **The Further Study of Animal Life.**—Sympathy with animals. Observation of birds. The study of insects.
10. **Extensions of the Course.**—The character of the district and its prevailing industries can determine the lines of the work. The rural school. The school in industrial areas. Relations with other subjects ; Gardening ; Geography ; House-craft ; Health.
11. **Central Schools.**—An extension of the work already outlined rather than courses which cannot be dealt with successfully before the age of 16.

I. GENERAL CONSIDERATIONS.

1. **General Aim of the Teaching of Science.**—The scope of the science teaching in the Elementary School is determined by the age of the children who receive it, the qualifications and bent of the teacher, and the accommodation and equipment available. The mere fact that the instruction is with few exceptions limited to children under 14 years of age precludes a detailed study of any one branch of science.

The main purpose of the teaching should be :—

- (1) The awakening of interest in plant and animal life and in natural scenery.
- (2) The simple investigation of common phenomena and the broad scientific principles underlying them.

Teachers who keep these aims in view will be able to lead the children to understand something of the simpler rules of health and of the service of science to the community and,

at the same time, to awaken an appreciation of the beauties of nature. Most children enjoy the handling of apparatus and observation of the way it works, and many in addition wish to design and improvise. The science lesson gives opportunity to satisfy these very natural inclinations.

2. Books and Reading.—The choice and use of books in connexion with the teaching of science require the exercise of careful judgment. To substitute the gaining of information from books for actual observation and experiment with material things is to defeat the whole aim of the course. Children, however, whose interests and curiosity have been aroused will desire to know more about the subject and will be eager to supplement from books knowledge acquired in other ways. Hence they should have access to books on the particular branches of science included in the scheme. Some of these should contain accounts by great scientists of their own work. The stories of the invention of the miner's safety lamp, of the efforts to control malaria, of the improvement of food plants, are full of interest, and children will be glad to know something of the lives of outstanding scientific workers of all nations, Galileo, Franklin, Faraday, the Curies, Pasteur, Darwin, Lister, etc. Where plant and animal life are studied by the older children there must be books of reference for the identification of plants, birds and insects.

II. THE INFANTS' AND JUNIOR STAGES.

3. Infants (5-7 Years of Age).—The teaching will have served its purpose at this stage if it keeps alive the curiosity of the children, interests them in natural phenomena and leads them to make observations which can be put to fuller use later. For very young children nature is represented by the living things around them and by the sky, the wind, and all natural phenomena. The growing plants in the classroom have to be tended, while twigs and flowers have to be arranged and placed in fresh water. If there are animals, they have to be fed and kept clean. Other interests of the children lead to science of a rudimentary but none

the less real kind. A child plays with water—he floats some things, sees others sink ; he pours water into sand and over clay with effects that are different ; he blows bubbles ; he mixes water with colour ; he holds the mixture up to the light ; he watches the effect of the combination of colours with his top ; he experiments with things floating in air—balloons, feathers, paper ; he works or plays with such natural materials as garden soil or sand and clay. All this will be done in a good school and repeated but without comment.

In classes of children from six to seven years of age, the nature work should still be based on their active share in the care of the garden plot and nature table ; their watching of living things in the schoolroom and the countryside ; their painting and drawing ; the preparation of Nature and Weather Calendars. These occupations will give the children many opportunities for asking questions which the teacher will answer and supplement by simple explanation where necessary.

The Infants' Stage is not the time for anything that might be described as formal botany. It is not the time for counting petals or comparing stems, but for satisfying an interest in living things aroused by their beauty of colour or form, and in the doings of animals. The teacher of young children who is able to maintain in or near the classroom a succession of growing healthy life has gone far towards becoming a successful teacher of natural history. She will find helpful the pamphlets of the Nature Study Union which has given considerable attention to the problem of keeping living things in the classroom.

The younger children should also visit frequently the school garden, if there is one, to follow seasonal operations such as sowing and planting, and to observe growth changes, flowering, and the formation and ripening of fruits and seeds. Where sufficient space is available either for class plots or flower borders, cultivation of hardy perennials capable of standing constant handling, and quick growing annuals, may be attempted even by the infants.

Weather variations and the progress of the seasons interest even young children who enjoy recording them in the form of a Nature Calendar on which are entered pictorial or written records of the children's observations of the wind and weather, the principal growth changes of common trees, plants and animals, the seasonal arrival and departure of common birds, etc. As the powers of observation develop, this calendar will gradually assume a more exact and detailed form.

In winter, stories from appropriate books are better than any formal instruction.

4. Juniors (7-11 Years of Age).—With children of seven to eleven years of age the first aim of the teaching will still be to keep alive and quicken the spirit of wonder and inquiry and to direct its activity. The children should therefore continue to have constant opportunity for close contact with plant and animal life, for observing the main features of the district around the school and for noting the simpler natural phenomena. But, while care must be taken to secure continuity with the aims and methods of the Infants' classes, the treatment of the nature work for children of this age must be more exact and progressive to suit their widening experience and growing powers.

The children can assume more definite responsibilities for looking after the animals and plants kept indoors, e.g., washing the flower vases and arranging the flowers brought to school or obtained from the garden ; changing the water in the vases ; preparing seed pans and window boxes ; sponging, dusting and watering the plants ; making simple plant labels ; sowing seeds ; setting up germination experiments ; changing the water in the smaller aquaria ; feeding the tadpoles, sticklebacks and other forms of pond life ; cleaning out the caterpillar cases and putting in fresh leaves.

Continued observation of plant life should be made in the school garden, wherever available, in the classroom, and, in the case of the rural or suburban school, during nature walks. Even in town schools much may be done through indoor gardens : seeds can be grown—wheat, cress and

linseed on damp flannel or a moist sponge, peas or beans in boxes or jars filled with sand or sawdust, acorns or chestnuts in pots or suspended above water in jars; carrot-tops can be shown growing in saucers of water, potatoes sprouting in shallow dishes on the window ledge, twigs developing in vases; bulbs and corms of all kinds, onion, hyacinth, tulip, daffodil and crocus, and numerous pot-plants can be grown. These can be supplemented by window boxes and flower borders in the playground along an open sunny side of the building. Visits may also be made to public parks and gardens or the more open commons.

Though it is usually more difficult for the average school to provide a wealth of animal life for continuous study, much is possible in country or town. Simple aquaria stocked with suitable specimens may be used to illustrate pond life. The children can be taught to look after the captives and, in doing so, they will acquire a knowledge of the ways in which the creatures move, breathe, obtain their food and protect themselves. Suggestive questions by the teacher open up many lines of investigation.

Other forms of animal life may also be kept under observation. Insects like cabbage butterflies can be housed in simple cages as described in Section 9 and their life histories and habits followed. Earthworms can easily be kept and observed. Occasionally an observation hive or even a formicarium may be available. In the garden, too, the activities of the earthworm, slug, earwig, ladybird, garden spider, flower visitors and insect pests of all kinds, can be followed. Bird visitors may also be encouraged.

At this stage individual note-books should be kept, and collective lessons may be introduced from time to time, not so much to give formal instruction as to lead the child to institute comparisons or to follow a new line of observation. As a rule, the lessons should follow observation rather than precede it. The success of the course will depend largely on the power of the children to express essential details by reasonably accurate drawings.

Practice in interpreting structure by means of pencil or brush, followed by a short description in writing, is essential

to any progressive study. The material chosen must be big enough for the children to see. Bulbs and the larger seeds—bean, horse-chestnut, hazel and acorn—are suitable. Young children can compare the appearance and way of growth of one seed with another. Quite early, too, they can see for themselves and express in words and by drawings the bending of plants towards the light, the downward growth of roots, the strange appearance of plants grown in the dark, the opening and closing of flowers and the visits to them of bees and butterflies. To train the child to make quick accurate sketches takes a considerable time, but the time is well spent. The drawing of small objects to a larger and definite scale, two or three times the natural size, tends to increase accuracy. Modelling in suitable material should be encouraged. By such means the three dimensions of an object can be more fully realised, the "finger touch" on the material being as important as vision in realisation of shape. In addition, the majority of children enjoy construction. Details of shape and arrangement which may be dull in description acquire interest when rendered in pictorial or plastic material by the child himself.

In towns, especially where the opportunities for the study of animate nature are often very limited, the course at this stage may include lessons on the simpler phenomena of inanimate nature, and a teacher with a knowledge of the principles of physics will find little difficulty in finding suitable material ready to his hand. No attempt should be made to develop anything of the nature of a formal study of any branch of physics, and the aim will be not so much to explain phenomena as to awaken the children's interest in them and to develop their powers of description and observation. Simple lessons on such subjects as the formation and colours of soap-bubbles, the different kinds of images in mirrors, the effect of prisms on light, the action of a magnet and simple electrical phenomena appeal to the children's interest. Working models and toys provide the additional interest of movement, and the designing and construction of simple models is always attractive. A good

basis for lessons at this stage is the investigation of the problem of "How it works."

The chief mistake made by teachers at this stage is to attempt to deal with abstract generalisations of science in set lessons on such subjects as "the properties of matter," "solids, liquids and gases," "the work of the leaf, root and stem." At no stage, and least of all in this stage, should generalisations be attempted unless they are founded on and justified by the children's own observations and experiences.

III. THE SENIOR STAGE.

5. **The Content of the Senior Course (11 Years and Upwards).**—The science course in the Senior School will be of the nature of serious study in so far as it trains the pupils to look below the surface of things for reasons and principles. Its chief danger may lie in the attempt to cover too much ground, or to undertake work which is too advanced for children under the age of 14. Ambitious schemes of this kind usually result in mechanical teaching, accompanied by hurried and incomplete work on the part of the pupils. Difficult theoretical conceptions, such as are frequently met with in the study of the various branches of science, must be avoided.

There is, however, a certain minimum content of knowledge which is essential to an understanding of everyday occurrences. It may be summarised as follows :

- (i) Simple study of the physics and chemistry of air and water.
- (ii) Simple experimental lessons on mechanics and physics.
- (iii) Elementary study of the conditions for the healthy growth of plants and animals.

No course in science in this stage can be considered complete unless it includes experimental work. The form which this may take will depend on various conditions—the equipment available, the locality of the school, and the

proficiency of the scholars. Various methods of work and developments of the simpler syllabus outlines are illustrated below.

6. Schools with a Practical Room, or with Available Free Space.—Many schools nowadays set apart a special room for work in Science. One great advantage is that space can be provided for experiments which take a considerable time to complete. More generally it is found necessary to use this room for other kinds of practical work, such as handwork, geography, needlework and drawing.

(a) *Furniture.*—The minimum furniture should include strong flat-topped tables not too narrow for individual or group work and giving a bench space of about 2 ft. 6 ins. for each pupil; cupboard accommodation; a water supply including sinks; some provision for heating. A teacher's demonstration table is also desirable, but this need not be placed on a special dais. A well-waxed deal table will stand any reasonable wear, and teak-topped tables are unnecessarily expensive. Stools, provided with silencers, are usually more convenient than chairs. Ordinary cupboards and shelving can take the place of more costly specially fitted cupboards.

If the room is primarily equipped for handicraft or domestic subjects, the special benches used for these can conveniently be adapted for other forms of practical work by covering them with removable flat tops. Where one or two strong benches are provided, necessary constructional work can be done without recourse to the Handicraft Centre. As a rule it will be found convenient to provide a fixed bench running along the whole length of a wall where the lighting is good. One end of this bench may be equipped for soldering, glass-bending, and other simple manipulations, and may be fitted with a vice; a sink and draining board, placed towards the middle of the bench, are useful.

Even where no Practical Room is available, it is often possible to make reasonably satisfactory provision for some practical work. Hinged benches, for example, may be placed round the walls of a large classroom. It has been found possible to put 40 desks in one of the old "60" rooms

and at the same time to provide wall benches where half of the class can work at a time. Useful work has been done in a small disused classroom or on collapsible tables set up in the school hall, or even on flat boards laid across the desks. If no water supply is available, enamel bowls and pails may be used.

(b) *Equipment*.—Some bought apparatus is essential, e.g., one or more balances of a simple type with the smaller weights replaced by a rider, thermometers, flasks, beakers, test-tubes and glass-tubing. Generally, however, it should be found possible to make or to improvise much of the apparatus. Of late years many books have been published containing suggestions and specifications for the making of science apparatus by pupils, and the teacher of science will do well to make himself familiar with some of these books. It is possible for the pupils to make a great deal of the minor equipment such as Bunsen burners, retort and burette stands and test-tube racks in the Handicraft Centre. Much of the apparatus for teaching mechanics may also be made, e.g., devices to illustrate lessons on friction, pulleys, the wheel and axle, the screw, the inclined plane, the parallelogram of forces.

Many important discoveries have been made with simple home-made apparatus. If the electrical apparatus required is of a type within the pupil's capacity to make, far more will be learnt of the properties of materials if construction is attempted than if a complete instrument is bought. In cases where complete apparatus or parts must be bought, these can usually be obtained at a reasonable price from a dealer in electrical sundries. Skill in the simpler laboratory arts, e.g., bending and cutting glass tubes, boring corks, etc., may soon be acquired. If a few pounds of glass-tubing and a set of cork-borers are available, no teacher should find much difficulty in making such things as siphons, differential thermometers and Boyle's Law apparatus. For experiments not requiring heat, expensive glassware is rarely needed. Glass jam-jars may be used for experiments with gases; they can be made gastight by grinding the mouths flat

with some coarse carborundum or emery powder and turpentine. Many schools have made measuring glasses and density bottles.

(c) *Methods of Work*.—In the fully developed science course experiments both by teacher and pupils and oral lessons will play their part. In the practical room the class may be set to work in small groups, each with its problem to solve. This method of attack will be found especially helpful for the small rural school where the senior class may contain pupils differing widely in ability. Problems for the pupils' experiments may be conveniently set out on problem cards which indicate the method of attack, and may suggest the form in which the results should be recorded. To enable the pupils to grasp the problems, the teacher may make preliminary experiments or give a short introductory talk. In the course of the practical work he may help them with difficulties that arise, and perhaps bring out others which they might not otherwise feel. He may either require each child to write out for himself what he can infer, or consider the results obtained by the class as a whole and help the children to draw conclusions from them. In this way a child can be introduced to "scientific method," i.e., to the collection of relevant facts, the formation from them of simple theory, the use of this theory to suggest further experiments from which its value may be tested.

The experienced teacher, however well equipped his science room, will never dispense entirely with the demonstration lesson. In recent years its value has been too often forgotten. One of its uses is to save time. A teacher can often run through a series of easy experiments in half the time the class would require and nothing valuable will be lost.

The importance of oral discussion is also frequently underestimated. A boy or girl may work through a series of experiments and still be quite unable to apply the results to the familiar facts of life. After studying the reflection of light, for example, the pupils might well try to apply the law to such problems as how to see round corners, or why, from some parts of the class, the blackboard

appears to shine. In some schools, a few minutes weekly are set aside for children to ask questions about matters which puzzle them. The teacher who is asked, for example, how a submarine can dive, or why blotting paper sucks up ink, has an excellent opening for an interesting lesson.

There is scope for simple courses in every branch of science. Some teachers will emphasise one branch, others quite a different one. One teacher will prefer to make the experiments centre around the properties of air and water, while another will base them on investigation of simple machines, e.g., the bicycle, bench vice, sewing machine, mangle, taps, locks, valves, etc. Other teachers might prefer to set their children to investigate the simple properties of sound, light and heat, magnetism or electricity.

Throughout this section importance has been attached to the making of apparatus by the pupils. It is a valuable means of acquiring knowledge. The boy, for example, who has made a simple galvanometer knows something already about the effect of a current on a magnet. All that the teacher has to do is to make this knowledge explicit, and to show how it can be applied to other examples.

Where the teacher has special constructive skill, or where close co-operation with the Handicraft Centre is possible, this type of work can play an important part in the science teaching. The boys can then make much of their apparatus from the beginning, and devise special pieces of apparatus to solve particular problems. Practical mechanics, for which many boys have decided aptitude, offers an excellent field for this kind of teaching.*

Most of these problems will usually be worked out in the Handicraft Centre and close co-operation with the science room is obviously essential. This does not mean that a mechanical correlation of the two courses should be attempted, still less that science may be identified with constructive work. However successful the constructive

* Further details of this method can be found in Educational Pamphlet, No. 36, "Some Experiments in the Teaching of Handicraft in certain Elementary Schools," published by the Stationery Office, and to be obtained through Messrs. Wyman.

work may be the teacher of science still has to see that the elementary principles and laws of physics are clearly grasped, and that they can be applied.

Suitable problems usually fall under four heads :—

- (a) The making of simple measuring instruments and laboratory equipment.
- (b) The repairing of apparatus, such as defective electric bell or a broken lock.
- (c) The investigation of common appliances, such as taps, flush-tanks, water circulation, bicycle pump, garden syringe, Bunsen burner, miners' lamp; telegraph and telephone instruments, the making of working models of them or of the parts used in their construction, and the assembling of bought parts.
- (d) The solution of practical problems, e.g., how to fit up a small electric light inside a cupboard so that the opening of the door turns on the light and the closing of the door turns it off; how to devise an overshot or undershot water-wheel motor; how to make a small windmill of sufficient power to work a pump, etc. The pupil will be expected not only to prepare proper notes and drawings illustrating his solution but also to construct a piece of mechanism which will, as a matter of fact, work.

So much practical work in physical measurements as is necessary for the early stages of the science teaching should be included in the Arithmetic course. (See p. 182).

7. Schools without a Practical Room and without Available Free Space.—Many schools have no Practical Room or available free space, and the instruction in science has to take the form of demonstration lessons in an ordinary classroom. The necessary apparatus is of a very simple type and can be home-made if the teacher be provided with the necessary material, e.g., glass-tubing, flasks, corks, cork-borers, simple lenses, metal rods, magnets, and apparatus for heating.

The teaching need not be formal. It should require the co-operation of the children who should be trained to write their own descriptions of the experiments and to sketch the apparatus used. Opportunities may be made for reference to the history of science and the achievements of its pioneers.

In rural schools, experimental lessons are frequently hampered by such difficulties as the absence of gas and water supply, and it needs considerable resource under these conditions to build up apparatus or carry out experiments. The use of pails and bowls will overcome difficulties of water-supply while a special methylated spirit lamp of an appropriate type can be used for glass-bending and blowing. Paraffin Primus Stoves provide a convenient source of heat in practical and experimental work.

The provision of a single woodwork bench with tools, such as is found in some rural schools, might be more general. If furnished with an overlying flat top, this bench can also serve as a demonstration table or a bench for practical work by the pupils.

Most small schools have a table where two or three older children at the head of the school can carry out experiments.

8. The Further Study of Plant Life.—In most schools there should be little difficulty in arranging for some study of plant life by the older pupils. Where there is a school garden, it can be used with advantage as an outdoor laboratory. In the country, field, wood and garden provide material at practically no cost, and, even in town schools, a sufficient variety of observations is usually obtainable if the co-operation of the children is enlisted.

Actual observation by the child must be the foundation of the work. The functions of the teacher are mainly the suggestion of subjects for investigation, guidance as to methods and the direction of simple experiments and the discussion of results.

The course should be progressive and any investigation set on foot should have a clearly defined aim. It need not be uniform for every child. Natural history lends itself

readily to group or individual work, and children who show particular aptitudes for special lines of study should be encouraged to pursue them.

A careful study of the forms of a limited number of plants and of the way in which they live rather than a superficial investigation of a larger variety is most likely to ensure fruitful and discriminating observation out of doors whether in garden or field. From his own work in the classroom and outside the child may be led to have clear ideas of the importance of the green plant in the economy of nature.

The children will have watched in the junior classes the growth of a number of plants and the germination of a variety of seeds. They will have examined several kinds of roots and shoots and will have become familiar with the parts of a flower, the position of buds, etc. It should not be necessary merely to repeat the same kind of observations in the senior classes. The germination of seeds may now be studied by experimental methods requiring closer observation than was appropriate before. The pupils may investigate the regions of elongation of the seedling root and shoot and the various ways in which protection is afforded to the growing shoot as it pushes through the soil. They may make simple experiments on the conditions necessary for germination and on the respiration and rise of temperature that accompany the process. Such lessons, involving the use of "control" experiments, are excellent examples of scientific method requiring exercise of the pupils' reasoning powers. In agricultural districts the life histories of crop plants have special interest and well deserve attention.

The general aim of the teaching will be to lead the pupil to look on the plant as a living and growing organism. For this purpose a thorough study of a small number of plants may be made each year. The choice of plants will depend on the locality, but the plants of different habits should be included, e.g., an annual and perennial weed, a crop plant, a climbing plant and a tree. From his own observations the child should be able to describe

verbally and pictorially the complete plant, not neglecting the underground part. He should find out all he can about its winter condition if it is perennial, its pollination, and the development of its fruit from the flower, what happens to the ripe fruit, and how the plant extends its range. He may estimate the quantity of seed it produces, make notes on its habits of growth, and on the position and kind of soil in which it succeeds. Most of this work should be done with the naked eye, but hand lenses should be available for use when wanted. There is no valid reason why technical terms should not be used in reason.

Without expensive or elaborate apparatus simple experiments may be devised to show the effects of light and moisture on the behaviour of plants and to demonstrate absorption, transpiration, the formation of starch in green leaves and the corresponding changes in the surrounding air.

Experiments on soils make another suitable course of lessons. They may illustrate the capacity of soils to absorb and retain moisture, the rise of water in soils, the reasons for rolling land, for mulching and hoeing the surface to prevent excessive evaporation and may include a mechanical separation of the soil constituents.

Field excursions should have definite aims, e.g., the study of the flora of a hedgerow, moor or marsh, the investigation of the weeds associated with special crops and soils, the study of trees and the characteristics by which their different varieties may be recognised.

It is desirable that the teacher should make a preliminary survey of the district to be visited and see that the children prepare note-books, sketch-maps, and specimen boxes for subsequent use on the ground. Two or more journeys over the same ground at different times of the year serve well to direct attention to the seasonal aspects of vegetation and of animal life.

All genuine out-door observation is to be encouraged. Children like to know the names of flowers and will keep a plant table well supplied with specimens which should be identified, labelled and exhibited separately. They may

be arranged according to localities ; woodland, waterside, meadow, etc., or by families. But every precaution must be taken to prevent unnecessary destruction of material. Children should be discouraged from bringing duplicates of plants already found. *The preservation of rare plants should be a point of honour with them.*

Wild fruits and berries are a suitable subject for out-door study. The attention of all children should be called to those of attractive aspect but of harmful nature such as pods of laburnum, berries of cuckoo pints, nightshade, the bryonies and guelder rose.

Though the making of collections of dried specimens is of little educational value, children who like doing so need not be discouraged. When it is undertaken they should be shown how to mount the specimens properly and to arrange them according to some plan. Competitions for mere numbers are very undesirable. It is better to turn the collecting instinct into some useful channel such as making a collection of dried grasses which will serve for the identification of these important and often neglected plants, or of the leaves of trees, or of seeds of common weeds, and complete specimens of the weeds themselves.

Though urban schools are confronted with special difficulties in studying plant life, experience has shown that excellent first-hand observational work is possible even in the heart of a town. For this, direct contact with flowers and growing plants is essential. Some of the ways in which it can be accomplished have been indicated above in Section 4. Public parks and gardens offer additional opportunities for plant study at all seasons. One Authority has attempted to solve the town school's difficulties by establishing a central distributing station attached to the parks which sends out plants and plant materials to schools which apply for them. In few schools, even in the towns, are the conditions so unfavourable that sufficient plants may not be grown to enable the children to know something of the way in which they grow and live.

9. **The Further Study of Animal Life.**—Most children are more interested in animal than in plant life; many keep pets and, in the country, the majority are familiar with the haunts and habits of the wild life of the countryside. This interest and knowledge may very well serve as an approach to a more exact and definite study of animals which leads up ultimately to an understanding of their struggle for existence, their difficulties and successes. Much of the value of the work lies in the sympathy which it evokes. This is best stimulated by the encouragement of care for animals and personal knowledge of their habits. The Bird Lover's Badge of the Boy Scouts and Girl Guides movements, and the Bird and Tree Challenge Shield Competition of the Royal Society for the Protection of Birds, are all designed to secure this sympathy and knowledge. A teacher can stimulate further interest by class discussions and by the direction of reading. Discussion should aim at encouraging observation rather than supplying exhaustive information and should include such topics as the recognition of birds by flight, call and song, their nests, their habits, and the use of their beaks and feet as tools, their food, their clothing, their camouflage, their gathering for migration and communal organisation, and, in rural areas, their bearing on agriculture.

Insects are particularly suitable for the study of life histories. Not only can they be kept under ready observation, but they form the subject of a notable literature.

There are many types of breeding cages for butterflies and moths. One of the most suitable can be made thus: a few inches of soil are placed in an ordinary flower-pot, and a small bottle filled with water is partially embedded in the soil, and shoots of the plant with the growing caterpillars are placed in the bottle. A wide lamp glass with a muslin top rests on the soil and encloses the bottle and its contents. From time to time fresh food is introduced, and after the caterpillars have settled on this, the remains of the old food are removed. All stages in the life history can be readily followed.

Communal insects such as the bee and the ant are easily kept under observation. Observation hives of bees have flourished in some of the most crowded parts of London.

Other animals which lend themselves to study are the earthworm, great water-beetle, gnat, caddis worm, dragonfly, mayfly, water scorpion, pond snail, garden snail, stickleback, frog, newt, mouse and rabbit.

10. Extensions of the Course.—In many schools it will be possible to add something to the minimum course of work which is suggested in Section 5. In considering what lines to adopt in planning this work, many teachers will want to take into account the character of the district and its prevailing industries. In schools in rural areas the study of plant and animal life sketched in Sections 8 and 9 can be extended to a consideration of the soils and crops and the weather conditions of the neighbourhood. Since this can be taught best through out-door observations and experiments, it will naturally be done in close association with the practical work in the garden and should lead to a grasp of the scientific principles underlying ordinary farm and garden practice. Some reference to this is made in Chapter XIII on the teaching of Gardening. In industrial areas the predominant industry of the district will often suggest a course of science which will gain in interest from its co-ordination with the practical applications of the industry which can be observed by the children in their daily life, or in educational visits to the places in which the industry is carried on.

Since science also stands in close relationship to other subjects of the curriculum, many teachers will desire to develop the science course in directions in which it will assist in the teaching of other subjects. Gardening has already been mentioned. Geography is a subject which has a strong scientific side ; indeed some teachers have merged their teaching of geography and science in a combined scheme. This is dealt with in Chapter IV on the teaching of Geography. The girls' practical work in housecraft again involves the application of many scientific principles, and it is possible to select matters for consideration in their science work which will give them a valuable background

of scientific knowledge, to which reference may be made in their work in housecraft, while their practical work will provide many illustrations which will add reality to their work in science. Finally, their lessons on health will gain in interest when they can be related to what they know from their lessons in science, and especially to what they have learnt, through their care of living things, of the conditions which determine healthy life.

II. Central Schools.—Certain Central Schools for selected pupils have well-equipped laboratories in which it is customary to undertake somewhat more formal study. Whilst such work may be desirable in some circumstances, Central Schools should as a general rule endeavour to extend and develop the type of course already indicated, rather than to attack Courses which demand for successful treatment continuous study beyond the age of sixteen years.

Many Central Schools have already developed courses in which there is a very successful co-ordination of the work in art, handicraft and science, in the manner indicated above.

CHAPTER VII.

MUSIC.

SUMMARY OF CONTENTS.

I. GENERAL CONSIDERATIONS.

Section.

1. **The Place of Music in Education.**—The revival of the love and performance of music. Music a “pattern-making” Art. The training of the sense of musical rhythm. The intellectual side of music. The imaginative side. Some musical activities additional to Singing.
2. **The Scope of the School Course.**—What class teaching should include. A proper balance to be observed between the different parts.

II. THE “MECHANISM” OF SINGING.

(a) VOICE TRAINING.

3. **Breathing.**
4. **Singing.**—Use of the head-voice. Dangers of alto singing.
5. **Physical Change.**—The “broken voice.” How to deal with the boy and girl at this stage. Dangers to avoid.

(b) EAR TRAINING AND SIGHT READING.

6. **Its Importance.**
7. **The Sol-fa Notation.**—Its step to the staff notation.
8. **Use of the Modulator.**—Its proper use. A step towards reading.

Section.

9. **Use of Books.**—Books essential for progress. The choice of books. The stages of instruction.
10. **Methods.**—Value of hand signs in the early stages. Musical dictation. The French system of teaching rhythm.
11. **Writing of the Staff Notation.**

III. THE TEACHING OF SONGS.

12. **Choice of Songs.**—Folk and traditional songs. Hymn tunes. Songs for infants. Songs by the great composers to be added in the upper classes. Too few songs often learnt. A good method of learning songs.
13. **Part-Singing.**—For the upper classes only. Interchange of parts desirable.
14. **Points to be observed in teaching Songs.**—(a) Position ; (b) Enunciation ; (c) Interpretation ; (d) Conducting.
15. **Mistakes and Difficulties.**—(a) Compass of young children's voices ; (b) Flat and sharp singing.

IV. MELODY TRAINING.

16. **Melody Writing.**—Its value. Practical suggestions.

V. APPRECIATION.

17. **Learning to listen.**—Study of musical literature. The gramophone. An elementary knowledge of Form.

APPENDIX.

A Scheme of Music Teaching.

I. GENERAL CONSIDERATIONS.

1. **The Place of Music in Education.**—During the last twenty years a remarkable revival of the love and performance of music has taken place throughout the country. The rapid growth of competitive Musical Festivals, in which, at the present time, something like half a million of adults and children take part ; the revival of Folk Dancing ; the widespread interest in Broadcast Music ; the increasing number of musical clubs and concerts of good music ; the

provision of special orchestral concerts for children and the growth in the number of amateur orchestras are only some among many signs of the increased interest now taken in music.

Subjects which can be made to subserve material ends are apt to be stressed in education, since their practical usefulness is patent to all. But when it is realised that education must take into account the whole man and aim at enriching his personality, and when the wise use of leisure is acknowledged as one of its chief objects, then the arts, and especially music, are seen to deserve generous recognition.

It is agreed that educational training should follow the natural course of the child's development and a basic instinct in the developing child is his need to make designs, to see and produce patterns, to feel rhythm and harmony in all he learns and does. All the arts are, in their specific ways, rhythmic, or pattern-making, i.e., they depend upon order, design, balance and proportion, but music, more especially, derives its very being from the rhythmic ordering of the sounds which compose it. It is, as a rule, through rhythm expressed in music, or at any rate in sound, that the rhythmic instinct of the child first discovers itself; while melody, the other essential part of music, has been called "the native tongue of the child." Music then, especially in the form of singing, is probably the art which can be used earliest and most easily in children's education.

Music can also play an important part in developing both the physical and intellectual powers of the child. As regards the physical powers, it is obvious that training in breathing, voice production and articulation are involved in the teaching of singing. Further, it may be pointed out that as any perceptions are more complete when they are obtained in more ways than one, it is desirable not only to train the sense of musical rhythm from the earliest years by beating out the regular accents of a piece of music, by beating out the patterns of tunes, and by other strictly musical methods, but also to make the whole body responsive to them through dancing, marching, and other physical movements. These last should not depend upon

a musical accompaniment. Hand clapping, small instruments of percussion used by the children, or any such direct means of emphasis are helpful if used in moderation. In connexion with rhythmic training it is hardly possible to lay too much stress upon folk dancing and the use of folk-songs and national songs.

On the intellectual side music will develop such powers in the child as keenness of perception, concentration of the attention, power to follow an ordered sequence of thought and power to perceive and use rules while inventing and developing ideas of his own by means of them. Music must not be thought of as a subject which does not call for hard work ; e.g., in ear training, the learning of musical notation and learning to listen.

Music, of course, affords wide scope for the exercise of the imagination as distinct from the reasoning power. Music may truly be called a language, but the real function of music begins at a point where words, intellectually apprehended, have no place. Its inherent significance is outside the range of the purely rational mind. A special exercise of the imagination is needed in order to recognise a musical idea in a particular series of sounds, or to recognise in musical ideas a disciplined expression of deep and obscure human emotions.

Music is not only an ennobling recreation, it is also an ideal means of promoting human fellowship. It brings people together to work for a common end under conditions which refine, discipline, and delight. Thus the teaching of music is seen to have a very real practical value. To have learnt to enjoy good music and to be able to sing at sight puts the scholar in possession of a sure means of happiness and usefulness.

In the Elementary School music will necessarily take chiefly the form of singing, but whatever may be possible should be done to promote the understanding and appreciation of good music, instrumental as well as vocal. If the children are given opportunities of hearing it, and are trained to listen intelligently, they will come to prefer and demand it. Full scope should be afforded to any member

of the school staff who is qualified to render special service in musical education by way of instruction, explanation, performance or organisation. The school library should contain one or two elementary books on musical history and criticism. Local Authorities can do, and have already done much to further the appeal of music by arranging special concerts for children or enabling them to attend public concerts on special terms.

There is nothing new in the claim here made for music. The delight in dance and song and widespread ability to take part in musical performance have characterised the national life in earlier days. A real culture cannot be superimposed, it must spring from the lives of the people, and in no art is this requirement more capable of fulfilment than in music.

2. The Scope of the School Course.—Class teaching should include the singing of good songs, breathing exercises, tone production, sight singing, ear training (including musical dictation), dancing and the hearing of good music. It is extremely desirable that all of these should form part of the ordinary curriculum of every school.

The first aim of the singing lesson should not be fine performance so much as the steady advance in musical culture, practice and perfecting of sight-reading and ear-training, and purity of voice production. This last is a sure test whether the voices are being legitimately used, and the "fine performance" will follow as the result of them all.

This aim will only be secured if care has been taken in planning the syllabus of work to secure both due continuity of method from class to class, and a proper balance between the different parts of the musical work in every class. Essential as is the mechanism of music—the use of sol-fa exercises, exercises in time and tune, etc.,—care must be taken that a disproportionate amount of time is not spent upon it at the expense of the singing itself. Time is frequently lost through lack of variety, fulness and purpose in the general plan of the lessons given.

While it is good in the shorter lesson to concentrate on one or more special points in the work, the longer lesson

will generally benefit by more specific preparation for introducing small instalments of each part of the work in turn. In the next lesson each of these should be carried a stage further ; and thus the series of lessons are connected together while the different parts of any one lesson are contrasted and diversified in a way that will keep the children alert, expectant and keen.

II. THE "MECHANISM" OF SINGING.

(a) VOICE TRAINING.

3. **Breathing.**—The lessons should begin with one or two of the breathing exercises recommended in the Board's Syllabus of Physical Exercises ; in the singing lesson the class should exhale on the sound *sh* or *ss*, or count quietly on a monotone. The exercises should be stopped as soon as there are any signs of straining to keep up the sound. Great care should be taken that the movement of filling the lungs, which distends the chest walls and lower ribs, does not raise the shoulders, nor result in "abdominal breathing." It should be borne in mind that musicians use the term "abdominal breathing" in a sense quite different from that given to it by a medical man. In the medical sense everybody breathes more or less "abdominally." Teachers of singing mean by the term the protrusion of the abdomen to a marked degree when a breath is taken. This should be carefully avoided. It is advisable to draw the pupils' attention to the difference between the exercises used for physical training, where the breathing is entirely through the nose, and those exercises where inhalation is through the nose and exhalation through the mouth for the special purpose of producing the voice.

4. **Singing.**—It is of the utmost importance that children should from the first be trained to sing with a pure tone and without strain. If they sing quietly, it is more easy for them to sing in the right than in the wrong way.

Those who drone, or who cannot sing in tune, should be weeded out of the class and grouped in the front to listen only. Their voices should be tried from time to time, and, as the power of singing develops (as will occur in the great

majority of cases), they may be allowed to sing with the rest. It should be noted, however, that such children often possess a very fair sense of rhythm, which can be made use of in the course of the lesson.

Children are apt to form the highly injurious habit of using the lower or chest register. If they attempt to sing an ascending scale in this quality, it will be noticed that the voices break at about C' or D', and the rest of the passage will be sung in the head voice. This, in both sexes, is the true child voice—the pure mellow quality of which is familiar in the singing voice of well-trained choir boys. A short daily practice of a few minutes will suffice to secure the use of a right tone if the following rule is observed. Let the class leap to, or start on, some note high enough to be quite out of the chest register (D', E' flat, or E'), and let them sing in this head voice a *descending* scale or passage, using the vowel sound of the word "on," the object being to draw down the head voice as far as possible. Quiet slow practice of a few such exercises will give a pure and beautiful tone, and will preserve the voices against the time when they begin to change.

The following are one or two examples of voice exercise which will be found valuable in obtaining a pure tone :—

p O(n) O(n).

oo - oh - ah, oo - oh - ah, oo-oh-ah, oo-oh-ah, oo-oh-ah,

oo - oh - ah, oo - oh - ah, oo - oh - ah, oo - oh - ah.

Scales should vary in rhythm and pace, and should never be restricted to four beats in a bar; occasional practice of quick scales is a useful aid to light, clean singing.

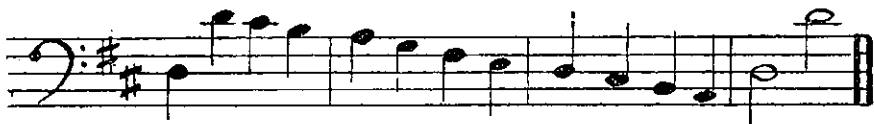
The best authorities hold that practically no child has a natural alto voice, though the actual compass of children's voices may vary to some extent. The frequent use, therefore, of the notes below C (the strong part of the contralto voice) means that the children are doing what is admittedly injurious. If, as is natural, they feel their inability to make as much sound as on the higher notes, and try to increase the volume of sound, they are obliged to reinforce it by using the forced, or chest voice familiar in the newspaper boy. If they sing softly, the voice gradually disappears as they go down and no harm is done; if they sing loudly on their lower notes, they sing harshly and flat.

The practice of using as altos, boys' voices which are beginning to change, risks permanent injury to the adult voice, because very many school choirmasters, while careful of the voice production of the trebles, allow the altos to sing unchecked on the chest voice. The reason for this use of the chest voice is that the lower notes of the head voice being weak, the altos are overwhelmed by the number of trebles who are singing on the most resonant part of the voices. The difficulty can be overcome by teaching both treble and alto parts to those whose voices are still normally treble, and then largely increasing the number of altos, while insisting on the exclusive use of the head voice.

5. **Physical Change.**—Hitherto the problem of the "broken" voice has not, with rare exceptions, arisen in Elementary Schools. But, in view of the work in Central Schools and the possibility of the school age being eventually raised, it is considered advisable to add a few suggestions for dealing with the voices of boys at this stage. The word "broken" is an unfortunate one. It suggests a catastrophe of some kind, whereas it is merely the sign of a natural physical change. The treble quality of the voice has disappeared but the voice still remains. The boy can still speak and read in class and can still injure his voice

unchecked in the playground. As regards the volume of sound that he can produce, there appear to be few signs of any breakage.

At first he finds difficulty in controlling his lengthened vocal cords and speaks at random in treble or bass. During this stage he had better not sing, but it will do him no harm to hum. When once he has acquired control of his vocal chords, and *speaks* always in the lower octave, he should begin to sing quietly. Voices in this stage should be treated in exactly the same way as treble voices, i.e., exercises should be taken from a high (head) note downwards. It requires a little nerve on the part of the boy now speaking for the first time in a man's voice to sing a "head" note, but if the teacher encourages him and, above all, sings the sound which he wishes the boy to produce, all difficulties will vanish. The pattern note of the teacher must be a true head note, not one that is a mixture of qualities. The first five minutes are the most difficult in the whole period of training such a boy how to sing. The two exercises given above are as good as any, although others embodying the same principle may be used. At first the boys should not be taken outside the limits of bass C to middle C; soon the compass of the exercises may be extended to an octave and a fourth, e.g.;



Girls pass through a similar change, often indicated by a slight huskiness for a short time. The greatest care should be taken with the singing voice for a considerable time both during and after the change; they should on no account be made to sing high treble or low alto parts, nor ever to be allowed to sing for more than ten or fifteen minutes at a time. The practice of allowing young girls with immature voices to study solo singing is fraught with great danger, and it is undoubtedly true that in this way

hundreds of voices are ruined every year. From the age of thirteen to sixteen or seventeen a girl's voice is in an extremely delicate state, and the strain which solo singing throws upon it is generally far too great. However powerful and full of promise a very young voice may be, it is only in exceptional circumstances that the best singing teachers will undertake to train it; and even then such lessons generally consist of quiet strengthening exercises, not advanced solfeggi or songs. Head teachers are therefore urged to draw the attention of parents (when necessary) to the dangers of adolescent solo singing. A certain amount of part music should be studied in addition to unison singing when the voices have changed, but great care should be taken in the choice of such music. Most musicians have never had occasion to study the limitations of the immature, and have written for mature voices. Teachers should not forget that the singing of such music by young girls is often dangerous to their voices—especially to the best and strongest of them.

The danger is minimised if as a rule compositions of not too robust a character are chosen. It is a frequent complaint among singing masters that the best young voices are often permanently strained and injured by teachers of class singing. Such teachers, even if excellent musicians and instrumentalists, often have little or no knowledge of the delicacy of the half-developed material with which they are dealing; and the enjoyment that young girls take in the use of their developing power tempts the musical teacher to try for choral effects which cannot be legitimately obtained with any but adult voices. There is now, however, a large amount of two-part and even three-part music by modern British composers which can easily be compassed by young pupils' voices if ordinary care is exercised.

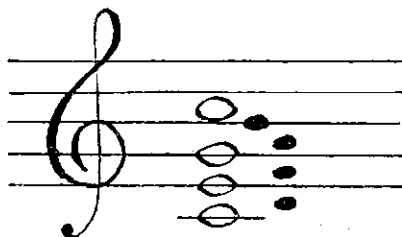
(b) EAR-TRAINING AND SIGHT-READING.

6. **Its Importance.**—The teaching of singing should include at every stage suitable graduated instruction in ear-training and sight-reading, together with a knowledge of time, keys and scale intervals. In so far as pupils are

unable to read music at sight by the time they leave school, their elementary musical education is incomplete. The training of the ear is of the utmost importance and should form a definite part of every singing lesson throughout the school. Experience shows that, if singing is properly taught from the earliest school stages upwards, children can be taught to read simple music at an early age, and that only 1 or 2 per cent. turn out to be really tone-deaf. Sight singing can easily be begun about the age of six.

7. **The Sol-fa Notation.**—For the purpose of teaching sight reading the value of the tonic sol-fa names and the ease with which they enable those who know them to read music in this notation are generally recognised. But the recognition of this fact has led many teachers to overlook the great value of the tonic sol-fa names as a means whereby the staff notation may be quickly and easily taught. It is of first importance that the tonic sol-fa notation should not be so taught as to impede or unduly delay the study of the staff notation. An intimate knowledge of the staff notation is essential on the ground that it is universally accepted and is applicable to every kind of instrument and music.

There are many points in which the staff notation is superior to the sol-fa, but the value of the root principle of the sol-fa (the firm apprehension of the mental effect of each note of the scale in relation to the key note) can hardly be exaggerated. Power to read the staff notation should be the object of all sight-reading lessons; and when once a child has thoroughly mastered his "mental effects" and can sing easily from the tonic sol-fa modulator the work should be transferred to the staff by means of a large staff modulator drawn on the blackboard.



Experience has shown that it is possible in many cases for children to start at once with the staff notation, though even in these the sol-fa names should be retained for staff reading exercises. There are many schools in England and Scotland where the infants after practice with the sol-fa and staff modulators begin to sing at once from the staff notation, the results being entirely satisfactory, but the sol-fa names are always used to ensure accuracy in pitch-gauging.

No pupil can be considered a good reader until he can sing the tune to "*Laa*" or some other suitable syllable without using the sol-fa names, though of course this should not be attempted until later in school life.

8. Use of the Modulator.—The main purpose of the modulator should be to illustrate and to correct, and a reading lesson, which is limited to its uses without other exercises, is incomplete. In pointing on the modulator care should be taken that the passage does not become a mere set of disjointed skips with no definite rhythm or melodic design. The exercises should, as a rule, consist only of such intervals and passages as pupils are likely to meet in the music which they sing, and some simple rhythm should be chosen which will allow for regular breathing places. For example, the following "voluntary," which would be quite good practice in notes, is meaningless as a piece of music, and the melody would probably be unrecognised.

(KEY A.)

s, m, f, s, n, r, d, l, s, m, f, s, m, r, d, r, r, m, f, s
f, n, f, n, r, d, t, s, d, n, l, r, s, t, d

But if these notes were grouped rhythmically by means of the pointer, the exercise has real musical value and becomes the old tune of "*Golden Slumbers.*"

KEY A.

{ s ₁ :m :f	| s ₁ :— :m	| r :— :d	| l ₁ :— :— }
{ s ₁ :m ₁ :f ₁	| s ₁ :— :m	| r :— :d	| r :— :— }
{ r :m :f	| s :f :m	| f :m :r	| d :t ₁ :s ₁ }
{ d :m :—	| l ₁ :— :r	| s ₁ :t ₁ :—	| d :— :— ||

When the proper stage is reached, the staff modulator has one great advantage over the sol-fa modulator. When the teacher points to a note on the sol-fa modulator, he has told the children what note to sing ; but when he points to a note on the staff modulator, the children have to think for themselves what the sol-fa name of that note is before they sing it. The staff modulator is, therefore, a real step towards reading.

9. **Use of Books.**—No real progress in sight-reading is possible without the use of books. In spite of this fact it is quite common to find schools without books, or with books that are hardly ever used. It is essential that five minutes in every lesson should be given to sight-reading from books. Fluency is perhaps the most important object to be aimed at. Whatever mistakes are made, the test should be proceeded with and the class should join in again without starting the test over again. If mistakes are made in pitch, it is altogether wrong to keep sending the class back to the beginning. It must be borne in mind that a mistake in time is much worse than a mistake in pitch. Exercises should not be sung more than once at the same lesson ; six or eight tests should be sung straight through. If this is done it will be found that the class sing the last two or three exercises with much more fluency and accuracy than they sing the first.

The choice of reading books is very important. The staff sight-readers found in schools are often open to serious

criticism. They are often printed in too small a type. The tunes are unmusical, often ending on the last crotchet of the bar ; there may be no clefs or key signatures in the early volumes, while many of the exercises may be five or six bars long. On the first page of the first volume the beginner may be expected to sing in the seven different keys in succession. Experience has shown that instruction should proceed by the following stages :—

- (1) The use of hand signs followed by the sol-fa modulator until any simple diatonic passage can be easily sung ;
- (2) Transference to the staff modulator drawn large on the blackboard. Children of six or seven who can sing from the sol-fa modulator will sing just as easily from the staff modulator.
- (3) Practice in reading from staff reading books.

The keys should be taken one at a time ; many teachers believe in beginning with a good grounding in the keys of C, G, and F. If this is done it will be found that a class will take up other keys without difficulty. There is, however, a danger in confining the work to these three keys too long. Further, it is fair to state that one school of thought believes in introducing the children to all keys at an early stage. The use of the syllable "*Laa*" in early stages induces laziness and guessing. It is important that children when reading at sight should move their hands to the beat. The use of the conductor's beat when reading is unnecessary at first, and it is often disconcerting to young children.





10. Methods.—In the early stages of ear-training, hand signs prove very valuable. It is a good plan, when these are being used, to ask the pupils to make the signs with the teacher, or to allow individuals to come out of the class and make the signs for the class to sing from. Later on, a half-dozen ear-tests should be given and the pupils should write them down. Ear-tests which are answered verbally are practically useless. Familiar phrases from well-known melodies should be selected, and the teacher need not be discouraged if some pupils can only write down

the first note. For a time they are bewildered by a phrase of three or four notes ; but, if they are encouraged to listen for the first note, the power to realise a longer phrase will soon come. As the children pass up the school, they should practise writing out tunes that they already know, instead of the usual unfamiliar phrases of a few notes without musical significance.

It cannot be urged too strongly that if real progress in reading and dictation are to be made, the use of the sol-fa names must become instinctive. Until every phrase heard or thought of presents itself instantly with the sol-fa names attached, until every tune already known can be sung fearlessly and without special thought by the children to the sol-fa syllables, so long is their elementary ear-training incomplete. The best and quickest method of ear-training is to make the children sing to the sol-fa names tunes which they already know. This exercise should be gone through at every lesson, and the children should be encouraged to think of tunes out of school, and to write them down both in sol-fa and in the staff notation.

The French system of teaching rhythm, usually associated with the tonic sol-fa, has great merits. It is based on the sense impression given by the pattering sound of certain mono-syllabic names, the combination of which imitates the rhythm of the musical phrase. These rhythm names are as valuable in the teaching of rhythm as are the sol-fa names in the teaching of pitch, and for much the same reason.

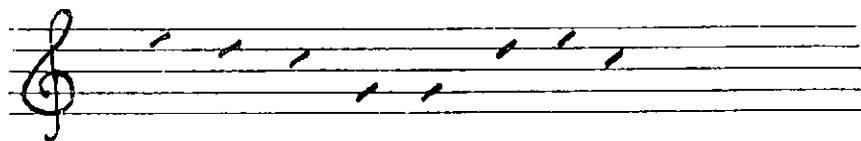
Example:-

		= Taa.
		= Taatai.
		= Tafatefe.
		= Taa-aa.

11. **Writing of the Staff Notation.**—There is no doubt that the difficulty and slowness which many teachers experience in the setting down of music in the staff notation may be a serious hindrance, cause much waste of time, and even discourage altogether the practice of written work. Children ought to be able to copy down a tune with fair rapidity, if they are to profit by the work in the later stages. The following hints for writing the staff notation may be useful :—

(1) The hand should be turned outwards so as to rest comfortably on its edge near the main joint of the little finger, and the pencil should point in the same direction as the line of writing.

(2) For black notes a round head is not required, and is simply a waste of time. A simple diagonal stroke, fairly heavy, drawn upwards from left to right at an angle of 45° to the staff lines, serves the purpose. For example :—



(3) A thin stroke is necessary for the tail, and it is not essential that it should actually join the head. For example :—



(4) The heads of open notes can be made in two strokes, which need not join too carefully. For example :—

(a) $\overset{1}{\curvearrowright}$ $\overset{2}{\curvearrowleft}$

(b) \circ (1 and 2 together).

(5) Later, when writing with a pen, a good round crotchet head can be made on the same principle as in (4), but with the strokes shorter and closer together, thus :—

(a) $\overset{1}{\curvearrowright}$ $\overset{2}{\curvearrowright}$

(b) \bullet (1 and 2 together).

(6) Rapidity can be secured almost from the first, so long as the pupils have confidence. Indeed, a fair measure of rapidity is conducive to a good result.

III. THE TEACHING OF SONGS.

12. **Choice of Songs.**—As a rule the music first learned by children should be drawn from our Folk and Traditional songs. These songs are the true classics of the people, and form the foundation on which a national love of music can be built up. Their survival, in some cases by oral tradition alone, shows that their appeal is direct and lasting. A pupil whose memory is stored with these songs from his earliest school days has the best protection that education can give against the attractions of vulgar and sentimental music when school days are over; and it is not always realised how strong and vital a tie between the members of a school, a college, or even a nation may be formed by their knowledge of a common body of traditional song.

To these may be added hymn tunes, which from their association form perhaps the strongest link of all. It is, therefore, of the greatest importance that wholesome tunes should invariably be used at prayers. Grown-up persons (and in particular those whose memory goes back 30 or 40 years) often have strong and moving associations in connexion with bad or sentimental tunes which the children have not, and, owing to the strength of these associations, are unable to assess the tune at its real musical value. But all teachers should make an effort to review

from a musical standpoint, and apart from all associations, the tunes used at Prayers, and thus ensure that the rising generation are not put into the false position of being deeply moved in later years by something that is after all nothing but a piece of bad art. It is unfortunate that many Authorities have published Hymn Books for use in schools in their areas which contain a number of hymns of poor character, while the tunes (some associated even with fine hymns) are often both weak and sentimental. Within the last twenty years so many books with fine wholesome tunes and descants have been published, that there is no longer any reason for using tunes of second or third rate quality.

For use in the Infants' Department, there are excellent traditional nursery rhymes or game-songs of English origin. Some of the French and Swedish nursery rhymes are also useful. These, having stood the test of time, are always preferable to modern action-songs. Children can pass from them to the easier traditional songs, the value and pleasure of which are in no way lessened by imperfect understanding of the words. It is a mistake to teach children only those songs the words of which it is supposed they will fully understand. It is the spirit of the song which appeals to the spirit of the child, not the words to the brain. In the Junior and Middle Classes, a wide knowledge of traditional songs should be aimed at. When a song of this character is once known, the tune is easily remembered. Even if the words, or some of the words, cannot be kept up, it is well occasionally to run through the music. A good method of keeping up the songs is to have a "sing-song" of the whole school for the last quarter of an hour on Friday afternoon.

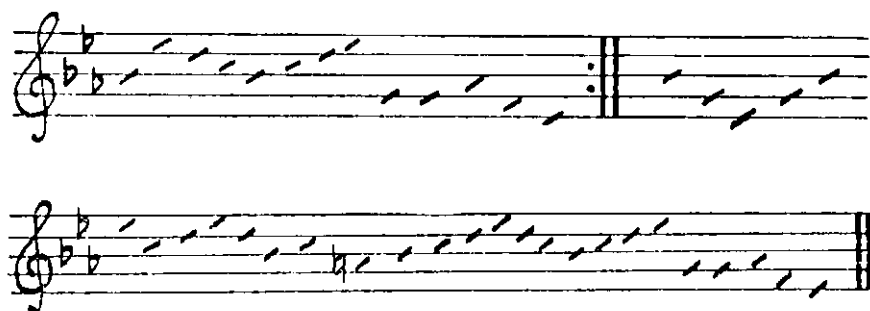
In the highest classes, while a sound knowledge of traditional song literature is kept up, it is obvious that full use should be made of selected songs from great composers, such as Bach, Mozart, Haydn, Handel, Byrd, and Purcell, and some of the fine unison songs which have lately been specially written for schools by modern British

composers. For school entertainments or similar occasions, other music is admissible in a limited degree; but the selection should always be made with great care.

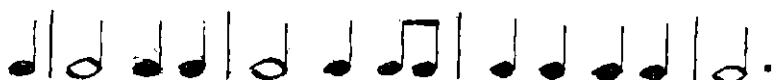
In the majority of schools the number of songs learnt is much too small. Some teachers are apt to go on practising the same handful of songs week after week, without sufficiently realising that even the best music can become tiresome if it is too often repeated. There is no doubt that the learning of good songs is the most effective way of training the taste of the singers, but the quality of the music is not the only point to be considered. The ideal should be to make the pupil familiar with as large and varied a store of fine tunes as possible, and their training in this matter should be extensive rather than intensive. If the class has a book of Folk or National Songs, they should learn on the average at least one new tune at every lesson, and it should be taught in the quickest way possible. For this purpose it is essential that there should be a set of good song-books, one for each member of the class.

A new tune should be taught not only in the quickest way possible but in one that is not purely mechanical. The following method has proved very effective. Let the teacher write out (as below) the *pitch* only of the tune to be learned; then, as the children sing it (to the sol-fa syllables), let the pointer, following the notes, tap the rhythm of the tune. The children will respond at once. At the end of the third repetition it will be found that the class can sing the tune in rhythm without any pointing; and at the end of the fourth they will sing it with the blackboard reversed. The whole of this takes only three or four minutes, and in the end, not only have the children learned a new tune, but they have, so far as pitch is concerned, read it, and, as they now have a tune in their heads with the sol-fa syllables attached, they have had in addition a valuable piece of ear training. In writing the notes it is only necessary to indicate by a short dash the line or the space required, and the adoption by the class of this plan of writing notes would save endless time in staff dictation.

The following well-known tune is given as an example of the appearance of the blackboard to the children :—



The teacher's pointer would give the length of the notes,



etc., each new note being indicated by a smart tap. Rhythmic tapping is only applicable to tunes in which the pitch alone of the notes is indicated; it should on no account be used in cases where both pitch and rhythm are written on the blackboard.

Until adequate proficiency in reading is obtained, the learning of songs should be mainly by ear, and should not be associated with reading. If only those songs are chosen which are easy enough for all the class to read, the range must obviously be very limited. If, on the other hand, it is designed to teach a song which, so far as reading is concerned, is beyond the powers of the class, the use of notation might well be dispensed with altogether. The learning of a new song should be a pleasure, and it should be one of the objects of all teachers to see how many songs a class can learn in one term. It is quite unnecessary that more than two or three songs should be brought up to the pitch of a finished performance in each term; the really important thing is that every boy and girl should have a large stock of songs in their heads which they can sing for the pure joy of singing.

13. Part-Singing.—During childhood unison singing should be the rule ; but, in order to develop the power to sing parts independently, rounds and catches, exercises and duets written for equal voices, and also simple part-songs may be introduced in the senior classes.

The same pupils should not always take the same part. It will often be desirable for those, or most of those, who have been singing alto on one occasion to sing treble on the next. A mixed class should never be divided so that the boys always sing alto and the girls treble. Further, the choice of two-part songs will be of primary importance. They should be not merely of suitable compass so as to be sung easily and without strain, but they should also have been originally written as two-part songs. As a rule the addition of an alto part to a melody which was written to be sung either as a solo or in unison does not harmonise it adequately ; nor is it advisable to mutilate a four-part song or chorus by the omission of the tenor or bass. A good many of the well-known traditional songs have been arranged with descants ; and besides being useful for practice in part-singing, they are musically very valuable.

That children should only hear and learn what is intrinsically good is the fixed principle which should govern the use of music in education.

14. Points to be observed in teaching Songs.—There are some important points to be observed in the teaching of songs.

(a) *Position.*—The position in which children stand when singing is important ; and if singing is to be the means whereby they express themselves, the position must be what may be paradoxically described as one of alert relaxation. It should be easy and upright, without any exaggerated inflation of the chest ; the feet should be a little apart with the weight thrown slightly forward ; the hands should hang slackly at the sides, and the chin should on no account be raised, nor the head thrown back. Occasionally the children may be allowed to sit for the sake of change in position, but they should on no account be allowed to lounge.

(b) *Enunciation*.—The attainment of full beauty of tone requires the practice of exercises, not only on the vowel and diphthong sounds, but also on the resonant consonants *m, n, l, ng, z, th* (as in *thee*), *g* (as in *gem*) or *j*, and *v*. Great care should be taken to avoid exclusive practice on any one vowel sound. Exclusive use of *ah, o* (as in *on*) or *oo*, each of which is excellent for producing certain qualities, stereotypes the mouth position and the vowel sound; the distinction between the various vowel sounds becomes blurred, pronunciation indistinct, and facial expression stiff. Further, the study of vowel sounds in the singing lessons should be related to local defects of speech. Thus children in London and the Eastern Counties should have special practice in the broad vowel sounds *ah* and *o*. On the other hand, the broad vowel sounds of the North sometimes produce fullness and beauty of tone at the cost of mobility of the lips, by which delicate and expressive gradations of tone are governed.

(c) *Interpretation*.—In teaching a song, it should be remembered that, if the singing is to be really vital, the pupils must try to express for themselves the mood or spirit of the song so far as they enter into it. Mechanical imitation of the teacher is valueless. The teacher who tries to awaken the interest of the children by first explaining the words in detail will not succeed in his attempt; nor will the children, even if they understand every word, necessarily seize the spirit of the song. The sequence is not the right one; for children will readily grasp the spirit of a song made vivid for them by means either of a picture or of a story told about it; and, if the spirit of the whole is expressed in their rendering, detailed understanding of every line and word is superfluous.

(d) *Conducting*.—It is important that children should learn how to beat time according to the recognised conductor's rules. There is no better way of making children sing rhythmically and correctly than by making them keep their own time. If a class is inclined to sing out of time, it is a good plan to make them walk round

the room in time to the song they are singing. They at once feel the chaos produced by cutting short a rest or a long note.

Teachers should, of course, be able to beat time when necessary ; and, in the singing of rounds and catches and in complicated part-songs and sometimes in order to establish the right pace even of a unison song, conducting may be necessary throughout. But in unison singing, when once the children know the song and have begun to sing, it is generally better to leave them alone. If the song has a fairly strong lilt pupils keep excellent time of themselves and the opportunity for true interpretation is largely increased ; the teacher will naturally correct any extravagance. So strong and independent is the sense of rhythm in a class, that it is not uncommon to find children singing in perfect time with a good rhythm in spite of faulty conducting. As a rule, all songs are taken too slowly in schools, with the result that the phrases become too long for the children to sing in one breath, and the continuity of the song is thereby broken. It is most important, too, that the accompaniments to songs should be tastefully and accurately played.

Unconducted singing is sometimes possible when during a sewing lesson girls hum or sing softly songs which they already know. Conducting is then found to be quite unnecessary, indeed it would be out of place ; and the singing assumes a spontaneity often lacking in the singing lesson.

15. Mistakes and Difficulties.—A few hints may be added on the method of dealing with some common difficulties and errors.

(a) *Compass of young children's voices.*—There is often entire misapprehension as to the compass of the voices of children during the infant stage. The general quality of voice throughout a school suffers if in the lower classes it has been assumed that young children necessarily have a small and low compass of voice. This assumption is contradicted by the well-known high, chirping quality noticeable when very young children are playing and chattering naturally ; indeed, the notes on which they

Speak and call to one another are usually much higher than those used by children of from ten to thirteen years of age. Yet songs for young children generally extend from C to D, thus deliberately enforcing the use of several notes which rarely come naturally into the compass of very young voices at all. The best method of training the voice at the earliest stage is for the teacher to sing easy phrases for the children to imitate, e.g.,



Any straining for high notes must be avoided, but this is easily secured by insisting on quiet singing. Children cannot sing quietly on the chest or "forced" voice, as will be seen if a class of young children is taken down the scale pianissimo, when it will be found that from about E downwards many of them cannot make any sound at all.

As a general rule, quite a number of the songs usually sung in Infants' Classes could be transposed a whole tone or even a minor third upwards with nothing but advantage to the voices; and it may be noted that the use of the low compass is the most common cause of flat and harsh singing in Infants' Schools.

(b) *Flat and sharp singing.*—There are several causes of flat singing, but the commonest are :—

- (i) Bad ventilation, which can, as a rule be remedied easily.
- (ii) Atmospheric conditions, such as fog, oppressively hot or thundery weather, which exercises a depressing influence. The best way of counter-acting this is to sing favourite songs of a cheerful character.
- (iii) Strain consequent upon standing in a stiff position which leads to a tightening of the muscles of the throat and face. The best remedy is to make the children laugh, and to let them begin

singing before they have had time to become serious again. Strain may often result if a class is kept standing too long. When possible, therefore, variety of position should be allowed.

(iv) The use of the chest voice has been indicated in preceding paragraphs.

(v) Inattention. A teacher should be specially on his guard against this fault when the class is already familiar with the song. If for no apparent reason the voices flatten, it is a curious fact of experience that if the song is repeated and the pitch raised a semi-tone the class will sing and remain perfectly in tune.

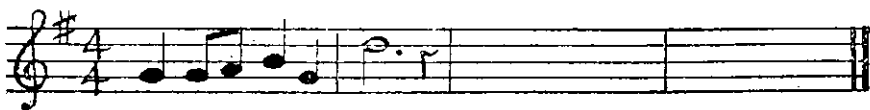
(vi) If the piano in use is itself out of tune.

Sharp singing is rare among children. When it occurs it is generally due to either excitement or the use of too much breath, and the remedy in both cases is to make them sing more quietly.

IV. MELODY TRAINING.

16. **Melody Training.**—It is advisable that children should, when possible, approach Music from another side and learn to make tunes of their own. These efforts will seldom be of musical value; but the practice of expression through this medium will greatly increase musical intelligence and give a knowledge of tune structure, balance of phrase and simple modulation which can be taught in no other way. The work is analogous to composition in the teaching of English, in which clearness of expression and the right use of words are the primary aim.

This work is best begun without the use of pencil or paper. The teacher should write up a short phrase of two bars and then make the children sing it individually, adding two more bars of their own to finish the tune, e.g.,



The variety of ways in which a number of children will answer this simple phrase is remarkable. The class should be asked to criticise the different attempts. Later, a phrase of four bars may be answered by a second four-bar phrase.

When children begin to write tunes, it is a good plan at first to make them use the pentatonic scale only (that is the scale with the fourth and seventh notes omitted),* for their choice of notes will thereby be restricted and a great deal of meaningless meandering will be saved. It is also advisable to suggest a verse to which the children might write a tune. Nursery Rhymes are preferable, for they merely suggest a rhythm and do not confuse the children by the introduction of word-pictures, sentiment or emotion.

V. APPRECIATION.

17. **Learning to Listen.**—Lessons in which children are trained to listen intelligently to music are often called "appreciation" lessons, but in reality they are only the climax of ear training. When children can read music well, and have had their ears so thoroughly trained that they can begin to listen intelligently, the study of musical literature may be begun. At a musical literature lesson the cardinal rule should be as little talking and as much music as possible. The ratio in a forty-minute lesson should not be more than 1 : 7. The gramophone may often be usefully employed in lessons of this kind. There are not many teachers who can give an adequate performance on the piano of, say, a symphonic movement, while such pieces as string quartets, string and wind solos, and even some songs, would be out of the question. The gramophone, although unsatisfactory from certain points of view, gives a representation of what was, in the first instance, a very fine performance of the piece chosen. Furthermore, in an orchestral piece, or in a quartet it often enables the "colour" of the different instruments to be plainly distinguished.

* "Ye Banks and Braes" is written in the pentatonic scale. A simple method of illustrating the scale is to play the black notes only on the piano, beginning and ending on F sharp.

Besides possessing these advantages the gramophone is useful in that it can perform music of a great variety of scope and can repeat each piece as often as is required to make the listeners thoroughly familiar with its beauties and so to leave a lasting impression on their minds.

Without talking too much about it, it is possible to lay the foundations of an elementary knowledge of Form by means of the occasional analysis of a tune which the children know, e.g., "The Bluebells of Scotland" (A.A.B.A.), "My Love's an Arbutus" (A.B.B.A.), etc.

APPENDIX.

The appended scheme is suggestive only, and must be interpreted in the light of the general principles set forth in this chapter. Grades I and II are intended for infants and junior scholars, Grades III and IV for senior classes. The exact age at which the transition from one grade to another can best be made must vary in different schools and must be left to the discretion of the teacher.

In schools organised for music in more grades than are contemplated below, some further graduation will be possible and even desirable. The course adopted in any school should be steadily progressive throughout, and great care will be required to secure this in cases where a "grade" is composed of two or more classes. It should be remembered that classes for theory and for technical practice gain, down to a certain point, by diminution of numbers; but choral classes gain, up to a certain point, by massing of numbers.

SUGGESTIONS FOR CLASS TEACHING.

1. The singing posture of individual children should be carefully supervised, and all straining checked. The children should be expected to indicate, as far as possible, by their facial expression the character of the songs they are singing.

2. The position of the class, too, must be considered. The practice of crowding two classes into a relatively small classroom should be avoided. Under these circumstances the air soon becomes vitiated, the voices tired, and the lesson is marred by discomfort which reflects itself in flat and expressionless singing.

The class should not face a school wall which is too near it. As a rule it should sing into the greatest air space afforded by the school-room, and the room should be thoroughly ventilated.

3. Flat singing is often fostered by over-use of the piano and by vocal support on the part of the teacher. In Infants' Schools and Junior Classes the piano is no doubt of great assistance in helping

the children over technical difficulties in those songs which are beyond their theoretical knowledge, but its continued use as a support to the children is to be deprecated. It should be used in the highest classes, as a rule, for purposes of accompaniment only. The use of a harmonium for this purpose is undesirable.

4. The best results in voice training are achieved by daily exercises of a few minutes' duration.

5. Each child should possess its own book of songs, and in the highest classes whole lessons should occasionally be devoted to singing suitable songs at sight.

6. Theory is the grouping and classification of musical facts that have been already learned through practice. The lengths of the notes, key and time signatures should be learned as and when they appear in sight-reading work. When teaching young children to apply sol-fa names to the staff for the first time, it may even be better for the first two or three lessons to let the sol-fa names be the only ones used or taught. Nothing can be duller, more uninteresting or useless than a lesson devoted to the names of the lines and spaces, and the lengths of all the different notes likely to be met with, when the children have had only a limited experience in the handling of one or two of these.

GRADE I.

1. **Voice Delivery.**—It is of the utmost importance that little children should be trained to sing in a pure tone and without strain, and that they should practise breathing at every lesson.

2. **Musical Knowledge.**—(a) *Pitch.*—The mental effects of the notes of the scale and their association with hand signs and sol-fa names should be taught, and the class should make the hand-signs with the teacher. The notes constituting the key-chord should be practised, and the class should be able to sing at sight from the modulator, using the sol-fa names, an easy series of notes in the diatonic scale, and also to sing a like series of notes written on the blackboard. Side by side with this work the simplest application of the sol-fa should be made to the staff, the staff modulator being drawn on the blackboard with lines at least three inches apart—



(b) *Time and Rhythm.*—The children should be trained by personal movements, such as tapping and clapping, and by the imitation of rhythmic and melodic phrases, to feel common variations of simple rhythm. This knowledge should then be applied to the singing of simple exercises at sight on one note, using the minim and the

crotchet in the staff notation. The rhythm names (commonly and erroneously called "Time" names) should be used. The sol-fa time notation need never be taught.

(c) *Ear Training*.—This should be largely based upon the collective imitation of short phrases, with sol-fa names attached, and patterned by the teacher. Short phrases from well-known songs are generally preferable to those invented by the teacher.

3. *Songs*.—Mainly old English singing games and traditional nursery rhymes, and Swedish singing games, the tunes of which would, of course, be learnt by ear. The games should be danced and acted wherever possible as well as sung. The music should not be divorced from its context and taught separately as a song, or the chief educational value of the singing game will be sacrificed. (N.B.—In small country schools where it may not be possible to attempt so much musical knowledge, a much larger number of songs and games than is otherwise usual should be learnt, due regard being paid to breathing, clear enunciation, and the suppression of shouting.)

GRADE II.

1. *Voice*.—Breathing exercises and simple voice exercises should be practised regularly in accordance with the principles described in the Chapter.

2. *Musical Knowledge*.—(a) *Pitch*.—The class should be able to sing at sight, first from the staff modulator and afterwards from exercises written on the blackboard, the notes of the scale in any (musical) order, gradually introducing *fe* and *ta*. This should be followed at each lesson by reading from written or printed exercises. The children who have passed through this grade should be able to sing at sight in the keys of C, G, and F, at least.

(b) *Time and Rhythm*.—The class should be able to sing at sight on one note to the rhythm names, exercises in time, the exercises to include the semibreve, minim, crotchet and quavers in groups of two, the crotchet being in each case the beat note. Rests may be introduced on either the accented or unaccented beats of the bar.

(c) *Combined Pitch and Rhythm*.—Easy exercises combining the above should be studied; the children might also have some practice in putting in the bar lines to simple unbarred exercises, and in naming the time of passages played or sung by the teacher.

(d) *Ear Training*.—Practice should be given in the imitation of rhythmic and melodic phrases, and the children should write down the notes of simple phrases. It is at this stage that the sol-fa-ing of tunes should be begun, and when a tune has been correctly sol-fa-ed once or twice, the children should write down (say) the first four bars, at first in pitch only.

3. **Songs.**—There is no reason why practice in reading songs from sight should be delayed any longer. For this process there are four distinct exercises :—

- (i) First, the children realise the *rhythm* of the song by reading it through with rhythm—sol-fa names only ;
- (ii) then they read the *words* through in this rhythm ;
- (iii) next they sing the *tune* to the sol-fa names ; and
- (iv) finally the song is sung with words and tune together.

There should be no part-singing unless it takes the form of a round or catch. Traditional songs should be freely used.

GRADE III.

1. **Voice.**—Breathing and simple exercises should be practised daily. It will be found advantageous to sing the voice exercises occasionally to a single word or sentence. The single word should be expressive of some mood, and the exercise should be sung accordingly. As, for example, “happily,” “sadly,” “heavily,” “lightly.”

2. **Musical Knowledge.**—(a) *Pitch.*—The use of the sol-fa names should be retained for the purpose of sight reading. The Staff modulator should only be used when necessary for the practice in a new key. All the remaining major keys should be studied. Pitch and rhythm need no longer be separated.

(b) *Ear Training.*—Sol-fa-ing of tunes should be continued and practised at every lesson, and the class should write down large parts of the tunes.

3. **Songs.**—Traditional and other good songs in accordance with the principles laid down in the Chapter should be sung and committed to memory, and, in addition, descants and simple part-songs.

GRADE IV.

1. **Voice.**—As for Grades II and III. In the highest class some of the voices may now show signs of change. Great care should be taken of these voices and all loud singing should be prevented. Boys with changing voices should not be withdrawn from the class, and, although they had better not sing, it will do them no harm to hum ; for it is always possible for them to take part in the sight-reading and ear training.

2. **Musical Knowledge.**—The class should be introduced to the minor keys and to $\frac{6}{8}$ time. The older boys should be introduced to the bass clef and sing largely from it, the passages sounding an octave higher than written. The ear tests should be longer and more varied in character.

3. **Songs.**—Traditional songs and carefully selected songs by the great composers should be sung ; also two-part songs, care being taken that the alto part does not lie too low.

CHAPTER VIII.

DRAWING.

SUMMARY OF CONTENTS.

I. INTRODUCTION.

Section.

1. **Changing Views.**—Drawing in the Elementary School. Older and modern views. A clear and definite purpose essential for success.
2. **The Meaning of the Term "Drawing."**—Used in schools in two meanings. In this chapter it is used to include representation of both form and colour.
3. **The Three Main Aspects of Drawing.**—A means of expression, a means of representation, an instrument of culture.
4. **The Teacher's Problem.**—How to increase a child's skill without destroying his natural desire to draw or injuring his freshness of vision.
5. **Children's Early Drawing Symbolic.**—The use of symbols.
6. **A Critical Period.**—Children draw from memory. They become discouraged when they realise their lack of technical skill.
7. **The Purpose of a Drawing determines its Character.**—Diagrams. Selective drawings. Conventional drawings.
8. **The Influence of Medium.**—The materials partly determine whether the drawing be in line or mass.
9. **Colour, the Natural Approach to Drawing for Young Children.**—Colour makes a stronger appeal to children than form.

Section.

10. **Choice of Pigments.**—The standard of colour. The first selection of pigments for a child.
11. **Water-Colours.**—The beginner's set of colours. What to add later.
12. **Pastels.**—The beginner's set of colours. Pastels as suitable for older as for younger pupils.
13. **Definite Colour Training Necessary.**—The colour scale.
14. **Colour Exercises.**—The effect of mixing pigments. The range of colours between two primaries. Contrasting colours.
15. **Contrasts of Technique : Water-Colour and Pastel.**—The different methods of using water-colours and pastels. Experiments possible.
16. **Colour Appreciation to be stimulated.**—Methods of doing this.
17. **Black and White Media.**—The lead pencil. Chalk and charcoal. The use of the pencil.

II. ARRANGEMENT OF THE SCHOOL COURSE.

18. **The Course depends on the Teacher.**—The teacher's skill and interests.
19. **Current Practice.**—Expression drawing largely confined to younger children, and object drawing to older children. The defects of this practice.
20. **Visual Memory to be trained.**—Its importance. The effects of training the visual memory.
21. **Children to be helped to " see " with their Minds.**—The aim in teaching children to draw. " Seeing " more than observation.
22. **Stages of the Course.**—The course divided into two stages.

FIRST STAGE (UP TO THE AGE OF 11).

23. **The Child and the Teacher.**—Young children draw for expression. How the teacher can help the child.
24. **The Drawing of the Human Form.**—How children can be helped to improve on their early efforts.
25. **Silhouette-Cutting.**—Its value in fixing attention on " mass." The uses of cut-out paper. Simple pattern making.
26. **Plastic Modelling.**—Its value. Two kinds of modelling.
27. **Drawing from Observation and Memory.**—Objects should possess interest and variety. Round objects best. The method of teaching.

Section.

28. **The Purpose of Drawing from Observation.**—To store the child's mind with visual memories.
29. **Comparison and Contrast.**—How to avoid convention and maintain the child's freshness of vision.
30. **Composition and Arrangement.**—The arrangement of the drawing on the paper. The frame. The title.
31. **Accuracy, Neatness, and Finish.**—Accuracy a relative term. The child's standards.

SECOND STAGE (FROM THE AGE OF II UPWARDS).

32. **The Necessity for Skilled Teaching.**—Advanced work should not be attempted unless there is skilled teaching. The size of the class. Older scholars should work largely individually.
33. **Choice of Syllabus.**—Aspects of drawing between which the choice can be made.
34. **Encouragement of Individual Ability.**—How to deal with the gifted pupil and the inartistic pupil.
35. **Foreshortening.**—General procedure in teaching foreshortening.
36. **Foreshortening of the Circle.**—Methods to be employed. Compositions drawn from memory.
37. **Foreshortening of Natural Objects.**
38. **Foreshortening of Rectilinear Objects.**
39. **Methods of maintaining Interest.**—Various suggestions.
40. **Decorative Invention : Pattern : Design.**—Design should be associated with construction in materials. The use and dangers of pattern-drawing. Types of applied design.
41. **Design associated with Artistic Crafts.**—Decorative needlework. Decoration of wood and metal. Pottery. Leather.
42. **Lettering : the Roman Alphabet : Manuscript Writing.**—All children should acquire a good style of lettering. The design of notices, etc. Borders, initials, etc. Lino-cuts.
43. **The Training of Taste.**—Mean and ugly things should not be chosen for drawing. The use of examples of artistic workmanship. The beauty of nature.

I. INTRODUCTION.

I. Changing Views.—The teaching of drawing as part of the general scheme of education in this country was introduced into Elementary Schools about 40 years ago. At

first a very limited course of line drawing, chiefly from flat copies of "freehand ornament," was prescribed by the Department of Science and Art, the syllabus being based upon that used for the training of adults engaged in industrial occupations. This syllabus, which took no note of the natural instincts and interests of children, was clearly not the most suitable for the purposes of general education; and, when about ten years later, inspection was substituted for the annual examination of schools, the planning of schemes for their own schools passed into the hands of the teachers, and a long period of experiment followed.

The almost exclusive use of the lead pencil was slowly supplemented by coloured media; copying from the flat gradually fell into the background in deference to the view that children's drawings should express their own ideas: and in the first decade of the present century there was a fairly general realisation of what was long ago desired by Rousseau for his pupil:—"I should take care to give him a drawing master who would not merely set him to imitate imitations and who would not make him draw only from drawings: I should wish him to have no other master than nature, no other model than real things, and to have before his eyes the actual original and not the paper which represents it."

This aim, which stops short of original invention and imagination, is clearly not sufficient to satisfy modern ideas as to the part to be played by drawing in the educational scheme; and so there is at the present time in most schools a somewhat vague and uncertain attempt to fuse into a coherent whole the many fragmentary "methods" of teaching drawing.

Conflicting views and diversities of opinion continue to be very marked: drawing is still viewed by many teachers merely as "hand and eye training," the lessons being simply practice in technique; more generally it is regarded as a means of securing definite observations and records of facts studied in lessons on nature; in other cases it is valued as a mode of pictorial expression; less frequently there is a

recognition of its cultural and æsthetic value in developing an appreciation of beauty of form and colour in nature and in art.

From whatever point of view the subject may be regarded, the teaching can only be successful when a clear and definite purpose runs through the lessons. Yet it is not easy to decide what the chief aim should be, for it must depend greatly upon the temperament and ability of the teacher and upon many other factors which vary from school to school, so that what may be successfully accomplished in one case cannot be done in another.

2. **The Meaning of the Term "Drawing."**—The word "drawing" itself is not infrequently a source of misunderstanding. In the first place it is used in schools with two different meanings:—(i) Free drawing with the unaided hand as the expression of individual judgment and feeling; and (ii) drawing with instruments (rulers, compasses, etc.), according to prescribed measurements. In the second place, further misapprehension arises because the word has acquired in many minds the limited significance of referring only to lines drawn with a hard point (e.g. pencil or pen), the lines being used to delineate merely the contours or outlines of forms in two dimensions—length and breadth. The habit of thought thus established in the minds of those who are taught to draw only in line leads to great difficulties when they attempt to represent the solidity of objects in three dimensions—length, breadth, and thickness. For this reason, if for no other, it is necessary in drawing objects to realise that we do not see things as lines but as areas or masses of colour—one mass touching another, light against dark, a white horse against the green grass, a red roof against the blue sky, etc. Hence, if we wish a particular drawing to represent actual appearances, we must imitate these masses or patches of light and dark colour; otherwise there cannot be a close resemblance between what is seen and what is represented on the paper.

The meaning of the term "drawing" must therefore be extended to include the representation of both form and colour, delineating edges and surfaces not by lines only,

but also by masses of colour, and consequently employing as well as hard points the flexible brush which can either draw a line with its fine point or spread colour over a surface. Which of these modes of representation is to be employed will, of course, depend upon the materials available, the purpose of the drawing, etc., to which further reference is made in Sections 7 and 8.

3. The Three Main Aspects of Drawing.—There are three main points of view from which drawing in schools may be regarded :—(i) As a means of expression ; (ii) as a means of representation ; and (iii) as an instrument of culture.

(i) The expressional view—that drawing is primarily a language, a mode of expression, by which the ideas, thoughts and feelings of one person may be graphically conveyed to others—is the aspect to which chief importance is attached by many of the best art-teachers. The great difficulty which arises here is that which accompanies every expressional art : how to develop a technique adequate for the purposes of expression ; and it is just this difficulty which lies at the root of the many varieties of method advocated by those who have given most thought to art teaching.

(ii) The representational view—where the dominant aim is to secure accurate representation of things seen—at present occupies the first place in most schools for older scholars. In Locke's words, it endeavours " to give the pupil so much skill in drawing as will enable him to represent tolerably on paper anything he sees." As a means to an end the importance of this is evident, for it supplies the technical skill which forms the practical basis of art ; but, as an end in itself, it has strict limitations, for it offers little scope for invention, imagination and individual expression : indeed, its utilitarian value largely depends on the exclusion of these qualities.

(iii) The cultural aspect of drawing—a view which has vigorous advocates—is that the main purpose is æsthetic or spiritual, that the practice of art is of less educational value than the appreciation of art, and that minor importance is to be attached to the pupil's own powers of expression and representation. This last seems to be an extreme view,

for there is not much doubt that persons who have some degree of practical skill in any of the arts appreciate that art more fully than those who have none ; but, however this may be, the importance of developing the æsthetic side of human nature is bound to be considered in education, and no one can doubt that the drawing lessons should lead to a training of taste and a discrimination of what is beautiful, ugly, or merely commonplace.

4. The Teacher's Problem.—The great problems confronting the teacher of drawing still await solution :—How to increase the child's skill in drawing without destroying that natural desire to draw which is so evident in all young children ; and how to develop the power of expression without injuring or destroying the child's eagerness and freshness of vision. The solutions can only be found through careful and sympathetic observation of children's spontaneous efforts to draw ; and investigations by many competent teachers and artists in this and other countries during the past quarter of a century have led to great changes both in aim and method.

In the past much wrong teaching has been given and a distaste for drawing has been created by attempts to teach young children to draw by formal methods suitable for adults, by compelling them at too early a stage to draw models set up before them, often commonplace or even ugly and entirely devoid of æsthetic interest. Not by such paths can the young child be led. His eyes must be opened to look at life in his wider daily world.

5. Children's Early Drawing Symbolic.—At the outset it must be recognised that drawing is as natural to a child as speaking. His first scribbles, no doubt, arise from a delight in movement and from a growing sense of mastery over material, but these early scribbles soon acquire a meaning to him, and, as in the case of all primitive peoples, are used as symbols to express certain ideas. This use of symbols furnishes a clue not only to the fundamental differences of outlook which distinguish Eastern from

Western Art, but also to some of the violent controversies in modern Art between the symbolists on the one hand and the realists on the other.

6. **A Critical Period.**—All who have watched the progress of little children's efforts to draw will know that their spontaneous scribbles will continue to give them pleasure as long as they are satisfied with the symbols they use ; but when they grow dissatisfied with the symbols, it is found that many of them become so much discouraged by their conscious lack of technical skill that their interest in drawing begins to flag, and they gradually abandon this mode of expression.

At this critical period the child's love of life and movement, his delight in bright colours, his toys and games, the scenes and objects of his environment, will all suggest subjects which he can be encouraged to draw ; and for nearly all of these he is bound to rely on his visual memory. But this is his natural impulse. The child instinctively draws from memory, because it seems to involve a less complicated mental process than drawing from immediate observation. In the first case he is expressing an idea already formed in the mind ; in the second case he observes, forms, or tries to form, definite ideas, and then expresses them. The teacher of drawing will find it helpful to remember that for young children it is easier to draw from memory.

Above all things, it is necessary to secure interest ; and to the child at any rate, the most interesting things in the world are those which from their nature can only be drawn from memory—living creatures, running, jumping, flying, swimming ; rapidly-changing natural phenomena, breaking waves, drifting clouds, glowing sunset hues ; the machines of man's invention, engines, motor cars, aeroplanes, ships and boats. These are all difficult to draw, but, being so much more attractive and interesting than common motionless objects, they are just the kind of thing which the child of his own initiative will fearlessly attempt, and his crude drawings are often surprisingly spirited and successful in catching the essential characteristics of life

and movement. But as intelligence wakens, the child begins to feel his lack of technical skill; he is readily discouraged, and his power of expression too often remains undeveloped because his interest has begun to flag. This is a critical period in drawing and most careful guidance and sympathy are needed. The function of the teacher then is to arouse further interest and emotional feeling, so that the child will look on life with a keener eye, and, urged by a passionate desire to create, will seek to represent to the best of his ability what he sees and what he imagines.

7. The Purpose of a Drawing determines its Character.—The character of a drawing depends on its purpose. Is it merely a technical exercise in the use of a certain medium? Is it to give a pictorial representation of something seen, remembered, or imagined? Is it a decorative invention? Is it a scientific record of observed facts?

Complete representation, which includes form, light and shade, and colour, is not always needed. In making a botanical diagram of a flower one may ignore colour and indicate the constructive shapes by lines alone. In making a colour-analysis of the flower for decorative purposes one may disregard light and shade and merely indicate the shapes as patches of flat colour. In such cases a conscious analytical process goes on in the mind; certain facts and appearances are deliberately selected and others deliberately rejected. The drawing becomes highly selective or "conventional." The drawings of Eastern artists, such as the Chinese and Japanese, are of this character; they accept the flatness of the paper and treat their subjects as decorative designs in line and silhouette, using masses of flat colour, and making no attempt to give an illusion of relief and solidity either by light and shade or by foreshortening.

Such conventional drawing evidently demands sound and mature judgment. It is, therefore, more suited to an advanced pupil who can clearly understand what he is trying to do, than to a beginner who naïvely attempts to represent what he sees, or thinks he sees.

8. **The Influence of Medium.**—The character of a drawing is also greatly affected by the materials with which it is made. Broadly, the materials determine whether the drawing be in line or mass. Prehistoric man when he incised upon pieces of horn or bone the outlines of mammoth deer, and other animals which he hunted, was working with intractable materials and had to adopt a convention very different from that which he used when he painted with soot and coloured earths the realistic pictures of bison, deer and wild boar upon the rock-surfaces in the caves of Altamura, the Dordogne region, and elsewhere. Similarly, the untaught child who draws with his finger in the sand is tracing "lines," but when he draws with a wet finger upon a stone door-step he uses not only "lines," but spreads the water over areas or surfaces and thus properly employs "mass" drawing, that is, he indicates shapes by their areas or masses and not merely by their outlines.

9. **Colour, the Natural Approach to Drawing for Young Children.**—While drawing includes both form and colour, there is no doubt that colour makes the stronger appeal to the young child, and is the dominating influence in awakening a feeling for beauty. The child's sense of form develops gradually as he associates the appearances of the things he sees with the sensations of touch gained by handling them; and he gives expression to these experiences by making mud-pies or by modelling in clay, by making marks with a finger or by drawing with any available material.

The child's sense of colour, however, is not dependent upon the handling of material things, although for all practical purposes colour is bound up with form. We may cut out pieces of coloured paper, or spread pigments with a brush, or dye coloured patches on a fabric, but all these embody form. Yet the study of colour may be carried on, and the use and enjoyment of colour may be developed to a considerable extent without "drawing" in its strict sense; in fact, some modern artists have experimented in this direction. The natural approach to drawing, at any rate, for little children, is therefore through colour.

10. Choice of Pigments.—The scientific standard of colour is the spectrum—the beautiful band of rainbow colours into which white light may be resolved either by a transparent prism or by a diffraction grating—but, for the practical purposes of drawing, colour is commonly identified with the pigments supplied by the artists' colourman, although no pigments are as pure and bright as the actual spectrum colours. A method of colour teaching widely adopted in the United States is to supply the pupil with six pigments approximately matching the dominant colours of the spectrum—red, orange, yellow, green, blue, violet—from which the intermediaries are obtained by mixture. Some authorities advocate beginning with an even wider selection of colours, but since the mixing or combination of pigments is in any case essential, many teachers in this country prefer to start with the three primary pigments—red, yellow, blue. By mixing these in pairs, the so-called secondaries—orange, green, violet—are readily obtained; while the addition of a third primary pigment to any of the secondaries will give the subdued greyish and brownish shades which are sometimes called tertiary colours. Thus, blue added to red-orange gives brown, and so does red added to yellow-green, while yellow added to violet gives grey (or black, if the colours are strong enough).

11. Water-Colours.—The set of water-colour pigments usually supplied to beginners is crimson lake, gamboge yellow, Prussian blue. They are not entirely satisfactory, for Prussian blue is greenish and will not therefore give a good violet or purple when mixed with crimson lake, though it will give a bright green when mixed with gamboge. Again, a good orange cannot be got from crimson lake and gamboge; a mixture of vermilion and gamboge is better. It is often convenient too to have a dull yellow such as yellow ochre. The following set of six pigments is therefore suggested:—Reds: crimson lake and vermilion; Yellows: gamboge and yellow ochre; Blues: cobalt and Prussian blue. (As yellows, chrome yellow and raw sienna may

be preferred, but chrome has the disadvantage* of being opaque). With these it is possible to paint anything the pupil is likely to attempt, but a few other pigments may be added as experience is gained, e.g., venetian red (or light red), burnt sienna (brownish orange), and for use in design, viridian (brilliant metallic green) and black. It is important to note that a good knowledge of water-colours and their mixtures can be more readily obtained through the use of a limited selection of pigments than from a large number, for it is obviously easier to become acquainted with the possible combinations of a small number. The pupils will thus be induced to try various mixtures in an endeavour to obtain the exact colour, instead of being content to search about the paint-box for a ready-made pigment of approximate colour.

12. Pastels.—A skilful teacher with a small class can manage to secure good work from quite young children using water-colours, but with large classes it is easier to use pastels. Since pastels do not mix as readily as water-colours a greater range of colours is necessary. The smallest selection should consist of the six spectrum colours named above, with the addition of white, black, and brown: nine in all. Such a small set has severe limitations though it may suffice for the expression of immature perceptions, but as soon as the pupils have had some experience they should be supplied with a set of twelve:—crimson, scarlet, orange, yellow, two greens, two blues, violet, white, black, brown. Even this selection will furnish too restricted a range for advanced work such as can be done by older scholars, for it is deficient in rich deep tones; still it has considerable scope when used with skill and discretion.

In some parts of the country there is a prevalent idea that pastels are only suitable for little children. This misconception has probably arisen where the pastels supplied are poor in quality and deficient in colour range,

* That is, a disadvantage when used in mixture with transparent pigments. If opaque pigments be used, it is better that *all* should be opaque. In that case the technique becomes similar to that of pastels.

and where the technique is not understood by the teacher. The fact is that in favourable circumstances and for suitable subjects pastels are capable of giving beautiful results, and older scholars should have opportunities of using them if they wish. Generally, the more skilful pupils should be allowed to exercise their preferences for one medium or another. Difficulties are sure to occur when a whole class is required to do the same thing in the same way, and nothing is more likely to retard the progress of the best pupils.

13. Definite Colour Training Necessary.—Any attempt to detail the many ways in which the child's colour perceptions may be developed would occupy far too much space, and any statements in words without illustrations in colour are liable to be misunderstood. Some brief suggestions are given, but these should be amplified by reference to some of the books on Colour. Definite lessons on colour are needed in addition to the practice in drawing with coloured materials. Just as the musical scale is needed in singing, so is the colour scale necessary for an understanding of colour. The children will have seen a rainbow, but, without guidance, they are not likely to have noticed the full range of the spectrum colours. On a sunny day the teacher may easily manage with a cheap glass prism to throw the solar spectrum on to a sheet of paper in the class-room, so that the children may see the gorgeous rainbow band and be led to identify the principal colours. It is necessary, however, to have a permanent colour scale for ready reference at any time; and for this purpose a "Colour Circle" is recommended. The teacher and the pupils should be provided with coloured papers of the correct hues, and pieces of these papers (say, one-inch squares) should be cut out and pasted down on white paper so as to show the whole range of spectrum colours. If printed papers of the correct hues are unobtainable, the teacher may prepare substitutes by laying strong washes of water-colour on large sheets of drawing-paper, taking great care to get the colours right, a matter which needs some skill. One of the best arrangements is Prof. Rood's Colour Circle, which is arranged in such a way that the complementary colours

appear diametrically opposite each other. The preparation and use of the colour circle by teacher and pupils should proceed gradually, beginning with red, yellow, blue ; then adding orange, green, violet ; and later introducing the intermediate hues until the circle is complete.

14. Colour Exercises.—Before actually mixing pigments, the children should be shown in various ways the effects of colour mixing. For instance, the teacher may obtain pieces of coloured gelatines (e.g., from crackers), or pieces of coloured glass, and by holding these up against a window, and then superposing red and yellow, yellow and blue, and blue and red, show how orange, green, and violet are obtained. Or the teacher may have several tumblers with dye solutions of various colours and show the effect of colour mixture by pouring one into another.

A great variety of interesting exercises may be carried out, of which only a few can be suggested. Using pastels or water colours, the children may colour flat spaces with two colours, say, red and yellow ; then mix these, and colour an intermediate space orange. Next, with more yellow make orange-yellow, and with more red make red-orange, thus forming a range of five hues from red to yellow. On another occasion the teacher may provide natural objects, from which the class may select a similar range, e.g., nasturtium flowers would furnish the series from orange-red to yellow, or a similar range could be selected from a number of oranges and lemons. The children should try to match each hue with a patch of pastel or water-colour, thus gaining skill in colour mixing, and at the same time they should write and learn the name.

Another exercise might deal with pairs of contrasting colours, those nearly opposite to each other in the colour circle, such as red and green, yellow and violet, orange and blue. Exact complementaries, e.g., vermilion and green-blue, yellow and violet-blue, are difficult to adjust, and must be postponed to a more advanced stage. For this exercise the children may colour simple patterns of stripes

or checks covering a rectangular field, either on squared paper (quarter or half-inch squares), or by ruling the pattern with pencil and ruler.

15. Contrasts of Technique. Water-Colour and Pastel.— In carrying out such exercises as these, as well as in their actual drawing lessons, the children will gradually learn something of the technique of the medium they are using. For instance, they will discover how the water-colours may be lightened or deepened by adding more or less water ; and how similar effects may be secured with the pastels by altering the degree of pressure with which the strokes are made, and by varying the width of the strokes and of the spaces between them, or by the addition of white. Such experiences will immediately emphasise the important differences between the technique of water-colour and pastel ; the former medium, used on white paper, derives its chief beauty from its translucency, the white paper gleaming through the film of colour ; the latter is opaque pigment and is preferably used on toned paper, the tone of the paper being chosen to help on the general colour scheme so that in most cases considerable portions of the drawing may be represented by blank paper.

Many other interesting experiments should also be carried out by the pupils in order that they may become familiar with the peculiarities of each colour medium. For instance, they may with water-colours paint a " soap bubble " (after seeing real bubbles), starting by preparing on their palettes small pools of red, yellow and blue ; next with a clean brush and water making on the paper a wet circular patch three to five inches in diameter ; then, taking the ready-mixed colours, running them into three sectors of the wet area, and allowing them to flow together and mix spontaneously. No two results will be alike, but all will delight the children, and the paper when dry will form an interesting means of observing the effects of colour-mixing.

Again, older children may make an attempt to paint from memory a sunset sky, in which the glowing hues of red, orange and yellow may be contrasted with the cooler tones of blue and violet. Or they may draw from

immediate observation autumn-tinted leaves, fruits, or berries, showing beautiful gradations of colour from green through yellow and orange to red and brown. When using water-colours these gradations of mergings of colour may readily be secured by allowing the wet colours to run into one another, though of course much practice is needed before the process can be completely controlled. When using pastels, this procedure is not available, and the dry colours must be merged or blended by carefully-laid strokes with varying degrees of pressure.

16. Colour Appreciation to be stimulated.—The school itself should, by its interior colouring and decoration help to stimulate the pupils' appreciation of colour, especially in large towns where the school often stands amongst dingy surroundings. The teacher, particularly in a school fortunate enough to possess a proper art room, should also manage from time to time to have on view a few beautiful objects, such as pottery of fine colour, bright coloured fabrics (e.g., small pieces placed temporarily in a frame), or natural objects of rich colour, e.g., flowers, feathers, butterflies, etc.

Again, when opportunity offers, even amid the smoke and grime of industrial areas, the children should be encouraged to lift their eyes sometimes to see the ever-changing panorama of clouds in the sky and the splendours of sunset, to note the fine pictorial effects of light gleaming through fog or rain or smoke, the reflections in a canal or river, or in pools of water, or the glow of blast furnaces on a dark night.

The effect of such experiences on minds capable of response is like that of listening to beautiful music, and leads to a fuller appreciation of beauty. Those unfortunate individuals who are not susceptible and responsive are not likely to be successful in any artistic effort.

17. Black and White Media.—The lead pencil is the most generally useful of the drawing materials which are used for expressing form apart from colour. But the

lead pencil ordinarily used in school is much too hard for free drawing ; grade B in cheap pencils is quite hard enough.

An artist can produce with the pencil beautiful drawings which may not only express form, but also light and shade, tone, and texture or surface-character. But young children who use lead pencils for writing do not usually handle them in the proper manner for drawing ; they grip them too tightly and generally adopt a stiff and angular position of the knuckles which does not permit free and fluent movement of the hand. It is therefore better as a rule to postpone pencil drawing till a later stage when the pupils have already acquired some flexibility of wrist and hand by practice with other drawing materials.

Even young children, however, may obtain much useful practice in drawing by using white chalk on good-sized blackboards. This practice, under the name of "free arm drawing," was for a time popular in Infants' Schools, where it often excluded other kinds of drawing. It is a means by which children may become acquainted with certain regular forms and may practise drawing these forms with somewhat the same end in view as when a singer or an instrumentalist practises scales, arpeggios and other musical gymnastics. In order to counteract the rather cramped style which is apt to arise from leaning over a desk to draw on small pieces of paper, older scholars also would benefit by some such practice, and this might easily be managed by allowing a few pupils at a time to come out from the class and draw from memory on any available blackboards. Or they might occasionally use charcoal and draw on large pieces of cheap paper, such as paperhangers' lining-paper, pinned to the boards. Charcoal, like chalk, may readily be dusted off and further trials made. Figure-drawing may well be practised in this way.

The use of the lead pencil for drawing is most valuable for "sketching," that is, for setting down quickly the results of observations such as the varied appearances of any object when placed in different positions or when

seen from different points of view, or for quickly registering impressions of moving things or transient effects such as are frequently encountered in outdoor sketching. For such occasions, which usually occur out of school hours, those pupils who are really interested in drawing can be encouraged to keep pencil and sketch-book as constant companions. Suitable sketch-books may be made by the pupils themselves by folding sheets of paper and stitching them into hinged cardboard covers, or fastening them to a stiff piece of cardboard after the manner of a writing-block.

The lead pencil is also a valuable instrument for pure line drawing by advanced pupils, the pencil line being varied in much the same manner as the pen-and-ink line, broadened and blackened by increasing pressure, and the effect of dark tone or shade being secured by drawing a number of lines close together, while texture or surface-character is indicated by varying the direction, length, and general character of the lines. This is really a difficult and advanced style of drawing, though, like pen-and-ink drawing, it seems to possess a peculiar attraction for more advanced pupils, the probable reason being that line drawings are familiar to them in book and magazine illustrations, and they are merely acting upon the natural human instinct to imitate what others have done.

II. ARRANGEMENT OF THE SCHOOL COURSE.

18. **The Course depends on the Teacher.**—Conditions in schools vary so greatly that it is only possible to deal very broadly with the planning of the school course. Some of the determining factors have already been considered, and it will be realised that a great deal depends on the teacher and on the special circumstances and environment of the school.

A teacher who is conscious of a lack of artistic appreciation and executive skill can hardly attempt to work out fully such a course as is contemplated here, but if he cannot direct an artistic course, he may still be able to

plan some useful lessons. Thus, he may teach his pupils to measure the plane surfaces of constructed objects, to make "hand-sketches" for recording their shapes and dimensions, and to draw these to scale with the usual instruments. Or, if he is a naturalist or a gardener, he may encourage the pupils to make drawings of plants and other things studied in the nature lessons, or drawings connected with gardening, such as illustrations of the methods of budding and grafting, or pruning and training fruit trees.

A teacher with artistic skill and real enthusiasm for the subject will be able to conduct a course of lessons calculated to secure the full educational possibilities of drawing, and it is hoped that the suggestions in this chapter may be helpful in this direction.

19. Current Practice.—The prevailing custom in many schools is to make a sharp division between "expression drawing" and "object drawing," keeping the former almost exclusively for younger children and the latter for older children. It is not always clearly recognised that "expression depends upon impression" and that what is known in the schools as "expression" or "imaginative drawing" cannot show progressive improvement unless the pupil's knowledge is continually extended by constant practice in representing the various aspects of the things around him.

In representational drawing it is usual to depend mainly upon drawing at sight, that is, from immediate observation of an object which remains in view while the drawing is made. The things drawn are rigid, immobile, and lifeless, usually placed on a table in front of the class, often without a background, and probably not well seen by many of the pupils. Under these conditions some children may attain a certain degree of skill, but they usually remain content to draw only what is in view at the time of drawing, and their visual memory is not developed. Consequently their minds are not stored with the necessary material from which new combinations or arrangements may be imagined, nor are they ready to attempt to make original illustrations embodying their mental pictures; in other words, their inventive and imaginative faculties are not stimulated.

20. Visual Memory to be trained.—The conviction is rapidly gaining ground that the training of the visual memory is of the highest importance in Art, and the widespread adoption of this view undoubtedly owes much to the publication in 1911 of Luard's translation of "The Training of the Memory in Art" by Lecoq de Boisbaudran, followed in 1921 by R. Catterson-Smith's "Drawing from Memory and Mind Picturing."

Experience shows that children whose visual memories have been developed are ready to express graphically what is in their minds; either memories of something specially observed, or imaginations in which memory, knowledge, and invention all take part. Thus they are able to draw not only the immobile things placed before them for observation, but also the more interesting moving and living things seen out of doors. Their drawings usually show a good deal of life and vigour, though they may be less complete in detailed representation, and, if in drawing from memory they have acquired the habit of comparing the drawing with the thing drawn, their memory drawings will compare favourably with those made by children who draw from immediate observation of objects in sight.

21. Children to be helped to "see" with their Minds.—In teaching children to draw, the ultimate aim is to train the mind, the eye, and the hand to act readily together in perfect sympathy; and the first essential is for the pupil to learn to see, that is, to see in terms of his mode of expression, to realise that a drawing is not like a cinema film which shows a continually changing series of pictures but that the drawing shows what is seen from one point of view at one time. This may seem obvious, but all teachers of young children know that their pupils in the early stages try to show in one drawing all they know: for instance, they try to draw the outside of a house and to show the contents of the rooms all in one view; or they show the front and the two ends of the house as seen at the same time.

It is the teacher's part, therefore, in teaching drawing to help the child to see things in such a way as they can be represented in a drawing. This is something more than

what is generally understood by "observation"—the investigation and recognition of every part and every fact of a thing so as to acquire full knowledge of its appearances ; it implies in addition a clear perception of the particular aspect as seen from one point of view. It is essential to realise that everything and every part of a thing is seen in relation to something else with which it must be compared before attempting to draw. In no other way can its distinguishing features be apprehended. There must be comparisons of colour, shape, size, position, direction, etc. ; and, the younger the child, the more assistance will he need in making these comparisons. He will often be helped by stating in words what he has seen.

The teacher's skill will be shown in the steps taken to direct the child's observation, in suggesting the best way of making the necessary comparisons, in avoiding confusion of ideas by not attempting too much at once, and, above all, in arousing and sustaining interest.

22. Stages of the Course.—It is very doubtful whether there is much to be gained by attempting to divide the work too definitely into what are called "progressive stages" ; for the development of individual children, particularly in their powers of drawing, varies so greatly. Moreover, the stages will vary in length and in range according as the school is a small one with a few teachers or a large one with many teachers. Still, it may perhaps be helpful to consider the course as divided into two stages : (1) for children roughly up to the age of 11 years ; and (2) for children above 11.

FIRST STAGE (UP TO THE AGE OF 11).

23. The Child and the Teacher.—The general principles which govern the arrangement of the course for children in the earlier years of the First Stage, i.e. up to the age of 8 or 9, have been discussed above in Sections 5-6 and 9-16. The important thing to remember is that the natural approach to drawing for young children is through colour.

Up to the age of 8 or 9, the child's natural tendency is to draw what pleases him, not what the teacher wants, to draw from his own ideas, not from immediate observation of what is before him ; in other words, he uses drawing for the purposes of expression and not primarily as a means of representation. It is clear therefore, that at this period a course which mainly consists of formal lessons in representation may be stigmatised as grammar before language ; but this does not mean that the teacher is to stand aside and adopt the attitude of entire passivity. On the contrary, the teacher should seize every opportunity of arousing the children's interest in the various things around them, in the incidents of everyday life, in stories told, and in many other ways. The talks between teacher and children may be so directed as to lead the latter unconsciously to make many valuable observations and to retain in their minds visual images which they will utilise afterwards in making their drawings.

When suggesting subjects for drawing, the teacher should be careful to suggest definite simple incidents so as to focus the child's attention upon the particular things required for his picture. It is specially important to avoid asking for things entirely beyond the children's knowledge, for it must be realised that what they can draw " out of the head " depends upon what they have previously seen, either as real things or pictures, or at the cinema ; and "imagination" is but a new, however mysterious, combination of old images.

The teacher can help the children considerably in their efforts by suggesting to them the materials suitable for what they are attempting to draw. For instance, any subject which makes a special appeal because it suggests beautiful colours, obviously requires coloured materials for its illustration.

But perhaps the most valuable of all help is that given by allowing the children at the end of the lesson to take part in free and friendly discussion of each other's work. For this purpose the drawings may be pinned to the black-board, and the ensuing discussion will be more effective in stimulating the children to think about their own work and

to recognise its defects—an attitude of mind essential to progress—than the more usual method of individual criticism by the teacher. Indeed, any criticism by the teacher should be very guarded, for great harm may be done when an adult standard of criticism is injudiciously and unsympathetically applied.

24. The Drawing of the Human Form.—Several references have already been made to the interest of children in things showing life and movement. Human figures and animals constantly appear in their spontaneous drawings, and a skilled teacher may greatly assist the children, even in the early stages of drawing, to improve upon their unaided efforts. First of all it is necessary to help them to amplify their vague impressions of the human form by making more definite observations. Much may be done by allowing children to come to the front of the class and take certain attitudes or perform certain actions while the other pupils, under the teacher's guidance, observe the varying directions of the limbs and then trace them in the air as an aid for impressing them in the memory. Next, they may construct "models" of the figures by the use of tablets or rectangular pieces of thin card or stiff paper; a square piece for the head, two oblong strips for each limb, and a larger one for the body. Approximate proportions may be obtained by experiment under the teacher's guidance. With the tablets the children can proceed to construct figures, walking, running, sitting, throwing, and performing other familiar actions. Subsequently they may use scissors and trim the rectangular shapes into curved forms approximating to human semblance. Another plan, not to be despised, is to use jointed dolls for demonstrating the actions of the human figure.

After these preliminary demonstrations, observations and constructions, the first attempts at drawing figures in action are best made with chalk, blunt pastels, or brush and colour, by which means the broad shapes may be more readily obtained than when a point is used. Perhaps the easiest way is to start with "match-stick men," that is, making single broad strokes for body and limbs, and then building up more bulky forms by widening the first strokes.

The object of all this is to help the children to overcome their natural tendency to concentrate too much attention on the details while ignoring the main facts. Hence the medium employed becomes specially important; and, under skilled guidance, the flexible brush probably offers greater possibilities than anything else.

25. **Silhouette-cutting.**—Cutting out shapes, though not strictly drawing, is a great aid in enabling children to appreciate form by observing the silhouette rather than the separate inner details, that is, to consider the “mass” or the solid form. The children may cut out silhouette shapes of human figures, animals, trees, etc. They should then place these shapes together on a suitable sheet of paper and compose them into pictures by moving the separate pieces about until they have found a satisfactory composition. By using papers of appropriate colours and pasting them down, the children may form pleasing pictures, and the ideas thus acquired will be of great value to them when they attempt to draw similar pictures. This illustrates one great advantage in the use of cut-out paper: it enables the pupil to experiment with his material before deciding on his final arrangement.

Coloured papers may be used in other ways. Children delight in cutting out irregular shapes in paper of different colours and in pasting them down to cover a space, purely as an expression of their joy in colour. Or coloured papers may be used to give children opportunities to develop their inventive powers in decorative composition or pattern forming. Small pieces of paper of various colours and sizes may be cut out, so that each child may have a number of pieces of the same shape—squares, circles, diamonds, triangles, or simple shapes of his own device. He may play about with these and thus discover for himself how patterns are formed from simple units by repetition, variety, contrast, alternation, etc. When he has devised a pattern which satisfies him, he should paste the pieces down to form borders, panels, all-over patterns, etc., which may be applied to objects which he has made in the Handwork Lessons. Quite young children will take a delight in these

exercises, which perhaps appeal to them specially when they are in the stage in which they are inclined to draw parts separately without much consideration of the relation of one part to another or to the whole. They should at first be allowed to rely on their own judgment as to equality of spacing, and should not be hampered by mechanical measurement ; but they will soon begin to realise the need for greater accuracy in "setting out" the units of ornament, and the teacher may take this opportunity of introducing the rule (divided into inches and half-inches) as a means of obtaining approximate accuracy.

26. Plastic modelling.—Modelling in clay or other plastic substance is a valuable aid which enables the child to appreciate form as it exists in three dimensions. Plastic modelling may be regarded as of two kinds. The first, which is natural to the young child, may be termed constructive modelling. In this case the child uses the clay as a means of self-expression, and the model is usually made smaller than the reality, e.g., two children playing see-saw. The second, which requires skilful teaching and is more appropriate to a later stage, may be termed replica or facsimile modelling. Here the child is supplied with an object to handle, and his model aims at being a replica in shape and size of the original, e.g., an apple and a pear (for comparison), or a mussel shell and a cockle shell. Modelling of this kind is a valuable aid in gaining knowledge of actual form, and it assists greatly in the drawing of many things. It may, for example, help the child to make better drawings of the pear and apple ; but it could hardly assist him to make a drawing of the cockle shell as seen foreshortened, for then the actual form would be in conflict with the appearance. The foreshortened cockle shell would be a subject for drawing in a more advanced stage.

27. Drawing from Observation and Memory.—Throughout their practice in modelling, constructing, and drawing, children will be acquiring a steadily increasing knowledge of the creatures and things amongst which they live, but as they progress they will need more definite guidance in

drawing various simple things from observation and memory. It is essential that the things selected for drawing should possess interest and variety ; sympathetic teachers will understand the children's preferences and will realise that such things as attractive fruits and flowers or well-made and brightly coloured toys will make a stronger appeal than other things which may only interest adults. It will be found as a rule that the younger the child, the more casual and transient is his interest ; but, as his intelligence develops, he will become capable of more sustained interest and a more concentrated observation. Even so, experience shows that most young children draw better from memory than from continuous observation of the actual object.

The easiest things to draw are those of roundish shape which do not vary much in appearance from any point of view, or flattish things which, seen in direct front view, appear in two dimensions and unaffected by foreshortening. The object selected must be placed in a fixed position so that the children at first are not confused by seeing different views of it. It must also be detached from distracting surroundings by placing a plain background behind it so that the pupils may form a clear mental picture. There should always be in the vicinity other objects with which suitable comparisons may be made, in order to emphasise particular characteristics.

To impress the form in their minds, the children should, with the outstretched forefinger, trace the shape of the object in the air, repeat this with the eyes shut, then look again, and as a means of defining its essential character, make a drawing on the paper with their eyes shut. This should be done carefully and deliberately, with the mind and hand working in close co-operation. When finished this drawing should be put aside. The object being screened from view, the children should then proceed to make a second drawing from memory with their eyes open. They should not copy or refer to the "shut-eye" drawing. Finally, they should look again at the object, correct their mental images, and make a third drawing as carefully as they can from the object itself. It must be noted that this

procedure involves close concentration and considerable mental strain ; consequently the lesson must be short, or it will defeat its own end.

28. The Purpose of Drawing from Observation.—In these formal lessons the main point to realise is that the lesson does not merely give “something to draw,” but that it has the double intention of forming in the child’s mind correct ideas of the appearances of things and of giving his hand the necessary control over the materials. Moreover, all the drawings should be considered as additions to the necessary store of mental images which must form the basis of future imaginative efforts : in Ruskin’s words, “as we increase the range of what we see, we increase the richness of what we can imagine.” Hence, every addition to the child’s store of mental images should be put to immediate use by its inclusion in some of the illustrations which he draws “out of his head.” Great care will be needed to prevent the drawings from becoming stereotyped, that is, always representing certain things in the same way. This can only be avoided by continually changing the conditions so that fresh observations are required, thus constantly replenishing the visual memory and leading the pupil to express his ideas in different ways from time to time. For example, a pear should not always be drawn in the conventional position with the stem upwards, nor a cup with the handle to the right. The pear may lie on its side, or the cup may hang from a nail.

29. Comparison and Contrast.—Stereotyped convention will be the more readily avoided and the child’s freshness of vision maintained if the teacher fully realises the value of variety, contrast and comparison. This may be kept in view even when placing the simplest objects for drawing ; e.g., a large coloured ball beside a smaller one of different colour, involving variety and contrast in colour, size and position ; an orange and a lemon, where contrasts of shape are added ; an ordinary “square” envelope and a “telegram” envelope of different shape and colour. The same principles will come more fully into play when drawing

things of more complex shape where one part may be compared with another ; e.g., a wooden spade, a cricket bat, a table knife, a stem and leaves, a long-stalked tulip and a bent-over leaf, or combinations of some of these, such as bat and ball, or knife cutting into lemon.

30. Composition and Arrangement.—Children who have thus been accustomed to see things associated for comparison will naturally develop the idea of “composition” or putting things together ; and they will not remain content to produce in any lesson a single drawing of an object surrounded by blank paper and showing no relationship to anything else. They will also readily grasp the idea that the arrangement of the drawing on the sheet of paper is a matter for consideration, and they will be led to regard the drawing as something appropriate for a certain space. It will usually be best for them to mark out on the sheet of paper with lines or brush strokes a rectangular “frame,” and to place the drawing so as to make a pleasing decoration for the space thus defined. The title of the drawing, in simple lettering of good form, should form an integral part of the whole composition. Previous practice in arranging pieces of cut-out paper will have paved the way for progress in this direction.

All this will lead to such considerations as the best size and shape of the paper and of the “frame,” as well as the best position of the paper for a certain drawing, and it will be obvious that loose sheets of paper will allow better opportunities than drawing-books. When separate sheets of paper are used, it is easy to make changes in the size, shape, and tone of the paper, and to encourage the pupils to exercise their individual judgment within limits. Each pupil should keep his own drawings together in a simple folio which he has himself made and which he can decorate at the proper time.

The matter of composition and arrangement is specially important when drawing from nature. Thus, if the subject is a twig bearing leaves, each pupil should have a specimen and should arrange it against a background of plain paper.

The teacher should then lead the pupils to observe not only the form and colour but also the rhythm and balance of the natural growth, and to consider what space is appropriately occupied by the twig, and consequently what sort of "frame" is to be drawn. The best position for the title in relation to the drawing must also be considered, and then the children may proceed to make their drawings with some likelihood of achieving a pleasing result. On another occasion, after studying the drawing of the single specimen the children might proceed to arrange and represent a more composite spray.

31. Accuracy, Neatness and Finish.—Although children must be led to realise that slovenly, dirty and untidy work can never be tolerated, the teacher should understand that accuracy is a strictly relative term, and should be careful not to exact at any particular stage of progress a standard of accuracy beyond what may reasonably be expected. What that standard is, can be discovered only by a skilful and sympathetic teacher with all the circumstances in view, and he will realise that the standards of the child and the adult do not correspond. Neatness is a more obvious matter, though individual estimates differ considerably. Finish offers difficulties, but a child's drawing may be considered finished when it corresponds with the idea formed in his mind.

SECOND STAGE (FROM THE AGE OF II UPWARDS).

32. The Necessity for Skilled Teaching.—The transition from the first to the second stage, involving as it often does a change of school, is another critical period in the artistic development of the child, especially when, as so often happens, he passes into the hands of a teacher whose outlook on art is very different from that of his former teachers. While it is possible for intelligent and sympathetic persons without much practical skill in drawing to do a good deal to help children through the earlier part of their artistic development, there is no doubt that in the **Second Stage**, and particularly in the latter part of it, the

drawing instruction should be under the direction of a special teacher with artistic skill, who would be able to discover and develop the particular abilities of individual children and thus avoid the great harm that may be done by an unskilled teacher who can only deal with drawing in a mechanical and perfunctory manner and who tries to force the whole class along the same beaten track. Unless the school possesses a teacher with special knowledge and interest in art, the more advanced work to be described below should not be attempted.

In this stage it is most desirable to keep the groups as small as is possible ; and wherever circumstances permit, the numbers in a group should not exceed 30 to 35. Children with decided ability in drawing should be promoted to a higher group for this subject ; others may make better progress in a lower group. Older scholars should work, to a large extent, individually and at their own pace, and the few who show special interest and skill should be encouraged in every possible way.

33. Choice of Syllabus.—Drawing is closely related to a number of other subjects. It is intimately connected with all kinds of handwork and the artistic crafts, and it is essential for illustrating and recording observations in many branches of study, while its practice when properly directed cannot fail to have a cultural and æsthetic value. The specific drawing lessons, however, in the Second Stage will fall broadly under the following heads, which to some extent overlap.

- (a) Representation : i.e. drawing from observation and memory :—
 - (i) Natural objects, including the human figure.
 - (ii) Fashioned objects.
- (b) Imagination and invention :—
 - (i) Pictorial illustration.
 - (ii) Decorative invention and applied design.
- (c) Geometrical drawing in association with design.
- (d) Lettering : Roman capitals and manuscript hands.

With the limited time available for drawing, it is clearly impossible for any one school to deal completely with all these aspects. Care must be taken not to overload the syllabus, but, where there is skilled teaching, it is not desirable to omit entirely any of the sections mentioned. Thus, although drawing from observation and memory is of great importance, it should not altogether prevent the children in this stage from continuing to exercise their imaginative and inventive powers. Again, while the preliminary training in the use of geometrical instruments will normally be given in connexion with arithmetic and mensuration, pattern-drawing and design cannot be carried far without the use of instruments. Similarly, to study lettering with any fullness requires much time and practice, but every drawing lesson should afford opportunities for its use.

The teacher must therefore decide what is possible in the particular circumstances of his school, and then plan a course with some definite aim in view. Pupils may easily be distracted if the choice of exercises is of a haphazard character.

34. Encouragement of Individual Ability.—Those children who possess innate artistic perceptions and some degree of imaginative and inventive capacity will naturally be in the minority, but they are the very ones to profit most by skilled guidance. They may be led, by the time they reach the higher classes, to look upon drawing as a delightful hobby and to spend some of their spare time in sketching out of doors. They should be encouraged to regard drawing as a means of acquiring material for use in artistic expression, and to take every opportunity of making drawings of human beings and other living creatures and of various indoor and outdoor subjects which they may use in their pictorial compositions. Here they will be beyond the range of the rest of the class, for it is found that some children at this stage begin to lose their interest in pictorial expression and to make little progress in the power of representing things artistically. These pupils often show a strong bias towards industry and may well become skilled artisans and useful citizens, though little would be gained by forcing them to

attempt subjects requiring artistic feeling. They may, however, increase their knowledge of the common objects of their environment by practising what is technically termed "hand-sketching." For this purpose they may accompany the more skilful pupils who are attempting more difficult modes of representation, and a series of lessons may be given in drawing from observation and from memory some of the fashioned objects and larger structures with which modern man, especially the town dweller, is surrounded. This practice will be of great assistance to them in handwork.

35. **Foreshortening.**—About the beginning of the Second Stage, i.e., from the age of eleven, it will be possible to deal formally with what is perhaps the greatest difficulty in drawing—the representation on a two-dimensional surface of objects occupying three-dimensional space. This, as the history of the graphic arts shows, was not entirely mastered even by great artists until drawing and painting had been practised for many centuries.

There is little doubt that much of the difficulty arises from the custom of drawing in outline and not attempting to represent surfaces, or from observing only edges and lines instead of noting the apparent extent of surface or amount of space occupied. The difficulty has been emphasised by the attempt to teach drawing by prescribed "rules of perspective" instead of relying upon trained observation, and this method has been undoubtedly fostered by the use in the early stages of the geometrical type-models which, being constructed on an exact mathematical basis with fixed proportions, can be, and commonly are, drawn entirely by rule. In an elementary course of drawing there is no need to use the term "perspective," which has become associated with difficult mathematical constructions and rules. As a matter of fact, it is possible to make good drawings of many of the most interesting things—living creatures and other subjects from nature—without any knowledge of perspective beyond what naturally comes with good observation. It is better to avoid the term "perspective" and to use the word "foreshortening,"

which is self-explanatory; the apparent shortening or narrowing of surface which is seen when an edge or surface is viewed more or less endwise, i.e., from the fore or front, instead of broadside. There are many ways of demonstrating this; one of the most telling ways is to place the children in front of a door which may be opened and shut. They will readily observe that the door when closed fills the frame, but when opened it appears to become narrower and leaves a visible gap between its outer edge and the frame. The pupils should state in words what they have observed, and they may repeat their observations by means of a stiff paper model held in the hand. After this they should draw what they have seen. Another great aid in demonstrating the effects of foreshortening is to use coloured surfaces, e.g., a rectangular prism or box with the top coloured (say) red, the ends blue, and the long sides yellow. By placing this in different positions the pupil will readily observe that the relative areas of the colours appear to vary; thus, the long yellow side may seem smaller than the blue end.

36. Foreshortening of the Circle.—In the earlier stage the children will have made many spontaneous efforts to represent foreshortened views of things, such as houses and vehicles, which offer many difficulties beyond their grasp; but when the teacher is arranging a series of formal lessons he will adopt an easier method of approach. He will begin by using such things as large circular discs, rings and hoops, loops of rope, etc., and the children should trace in the air the apparent shapes, noting that when seen obliquely the circular curves seem to be narrowed or foreshortened in the direct line of vision. Then they should draw what they have observed.

Their judgment may often be assisted by letting them look at the objects through a sheet of glass (e.g., a pane in a glass partition), and then allowing them to trace the observed shapes on the glass. Another convincing method of demonstration is to show the pupils the reflection of the object in a plain rectangular mirror. The object is seen as a picture in a frame and becomes quite easy to draw.

The next step will be the drawing of objects of the cylindrical type, such as basins, jars, pots, tins; and, later on, similar vessels having handles or spouts or both. In all these cases it is essential, in order that the children may acquire correct visual impressions, that they should compare the appearance of the object with that of a similar object in a different position. It will often help the children to observe and compare accurately if they are called upon to describe verbally what they see before they begin to draw. They may, for instance, fold a sheet of paper in two and write on one part a series of statements of their observation, and then on the other part make a drawing which should express graphically in one view all that is recorded in the series of written statements.

The positions in which things are placed for observation should be varied from time to time until the children's drawings are reasonably correct. It is far better to occupy a lesson in observing and sketching many different views of a thing than to spend the whole lesson in laboriously drawing one view. To enable the teacher to judge to what extent the children's impressions are correct, and also to retain their interest, the pupils should be encouraged to draw "compositions" from memory. For example, if they have drawn at various times the different things used on the tea-table, they might afterwards "set the table for tea" by drawing from memory a proper grouping of the tea-things; or, if they have drawn some of the things used in the garden, they might compose a group for "potting seedlings"; or again, if they have drawn in colour some of the table fruits, they might paint or draw with pastels a group suggesting "dessert."

37. Foreshortening of Natural Objects.—Lessons in foreshortening should include the drawing of objects from nature. For instance, comparisons should be made by the pupils, both verbally and graphically, between the appearances of simple leaves as viewed from the front and then edgewise, between the full front view of the flower of the dog-rose or buttercup and a sideways or oblique view, or

between the different appearances of twigs branching sideways and those projecting towards or away from the spectator.

The knowledge thus gradually acquired will enable some pupils at least to make further progress in the drawing of human figures and animals. They will be able to make reasonably successful attempts to represent positions and actions for which some knowledge of foreshortening is required. Moreover, their efforts in pictorial expression will show an increasing power to represent things in relation to one another; everything will not appear in the same plane, but there will be a gradual striving to show depth of space, some things near, others farther away, some partly hiding others, etc.

38. Foreshortening of Rectilinear Objects.—Towards the end of the second stage the better pupils will be ready to face the foreshortening of straight edges and rectangular surfaces such as occur in buildings, furniture, machinery, and other objects of man's construction. It is found that the apparent convergence of parallel lines receding obliquely from the spectator—an important law to observe in the drawing of rectangular objects—can best be demonstrated to the pupils in a large hall or corridor, or out of doors, by reference to the roof-lines and other lines of buildings, to tram-lines, telegraph wires, or railings. Pupils should observe cases in which the apparent convergence is seen on an extensive scale and in a manner sufficiently obvious for beginners to notice, before dealing with small objects in which the effect is so very slight that only a well-trained eye can recognise it.

39. Methods of maintaining Interest.—In this branch of the work special efforts will be needed to arouse and maintain interest, and to prevent the pupils from regarding the lessons merely as unpleasant tasks. Much may be done by following up the "composition" method (see Section 36); e.g., the pupils may draw from memory and knowledge the interior of a room, place furniture, pictures, curtains, etc. in appropriate positions, and decorate the room in a scheme

of colouring of their own choice. Such drawings should be discussed, lapses of taste and errors of drawing should be identified, and corrections made by the pupils (preferably in a new drawing made at home). Interest may also be maintained by leading the pupils to use drawing for illustrating and recording observations in other subjects. When they have once recognised its value in this way, they will realise that a drawing often gives a more definite and complete description than words alone can convey, and they will then consider drawing in its proper light—not merely as a separate “subject” but as a graphic language of universal appeal to be used whenever the need arises.

40. Decorative Invention : Pattern : Design.—Many children have some ability and taste for decorative invention, and they should have the opportunity of exercising their powers in some of the simpler varieties of artistic crafts. In this way they will learn something of the ways in which the character of the construction and the ornament is affected by the materials and the tools and processes employed. Design in its true sense can only be attempted with any success when the teacher has artistic taste and ability, a knowledge of the principles of ornament and construction, and a practical acquaintance with some of the crafts in which the designs are to be carried out. To use the term “design” for the mere drawing of patterns to fill certain spaces on a piece of paper is to use it without a full realisation of its meaning.

Pattern drawing is an occupation which offers no little scope for invention, ingenuity, and neatness of handling; it assists children to appreciate good spacing and rhythmic arrangement of forms and harmonious combinations of colour; it also offers frequent opportunities for the use of instruments and requires some knowledge of geometrical construction. But it may easily degenerate into waste of time unless it is carried out with a clear understanding of its purposes and with a definite end in view.

The simplest types of applied design which can be carried out on paper are ornament in connexion with lettering (see Section 44) paper appliqué (i.e. cut-out patterns in coloured

paper ; see Section 27), stencilling, and printing or stamping patterns. The chief value of stencilling is as a ready means of repeating a simple unit or motif, and of allowing the trial of different colour schemes ; and nothing is gained by cutting a stencil for a complete pattern which does not make use of its essential character as a device for repetition. Printing and stamping may easily be practised, even by young children, with very readily obtainable materials. A solid circle can be printed with the end of a round lead pencil, a small flower-form with the end of a pencil in which a few nicks have been cut, a ring with the end of a small tube, a square with the square end of a piece of wood or india-rubber ; and by using combinations of square and circle many different devices for borders, all-over patterns, spot patterns, etc., may be evolved by the pupils and put to use in their handwork lessons. Various shapes may easily be cut from pieces of raw potato, which takes water-colour very readily and enables delightful coloured patterns to be made without much difficulty.

41. **Design associated with Artistic Crafts.**—Decorative needlework opens to girls a wide and attractive field for applied design. For the development of this craft very different plans have been followed. In some cases, the girls have been allowed from the first to use floral patterns (sometimes even scraps from trade “ transfers ”), and their work has rarely shown much individuality, even at the end of the course. In other cases, the girls have begun by using various combinations of simple stitches, thus producing a great variety of attractive and characteristic patterns of their own device, and in this way they have acquired a good practical acquaintance with the principles of ornament which has enabled them later to make successful use of more difficult forms of embroidery. Another form of needlework which fosters the development of original design is appliqué work,* a form of decoration both effective and simple, for which preparatory exercises may be done, even in the lower stages, in the form of paper appliqué (see Section 27).

* This does not refer to the cutting out of patterns from printed fabrics, but to original shapes devised by the pupils themselves.

There is, unfortunately, no artistic craft readily available which offers to boys the same opportunities for design. The technique of wood and metal is more difficult, and it is hardly possible for any but the older boys to acquire much skill in the artistic treatment of these materials. In many schools for older scholars, however, considerable success is achieved by boys in decorating wood by some of the following processes: incising (with a V or U tool), carving, inlaying, burning (pyrography), stencilling, painting or staining, and gesso-work. Metal offers still greater difficulties, but creditable results have been attained in the design and construction of bent, twisted, hammered, turned or forged metal; also in the ornamentation of metal by repoussé work and sometimes even by etching, simple engraving and chiselling (chasing) and by enamelling.

Simple pottery, e.g., bowls, saucers, cups and vases, may also be made for boys and girls, and decorated with patterns consisting of scratches, incisions, and other impressed marks, such as form some of the earliest known examples of applied ornament. This will naturally lead on to the decoration of leather by means of impressed marks made with various simple tools.

For further references see Chapters X (Handwork) and Chapter XI (Needlework).

42. Lettering: The Roman Alphabet: Manuscript Writing.—All children should acquire a good style of plain, legible and beautiful lettering which can be written directly ("one-stroke lettering") with a broad pen. Good alphabets founded on the best manuscripts of the early centuries of our era, or on their revival in the early Renaissance, have been developed in modern times, and these alphabets are easily acquired by children who have learned to write a simple "script." They should also learn to draw the Roman alphabet (capital letters) in its pure and undebased form as found on the Trajan column. Photographs or reproductions of this alphabet and of good manuscripts are readily available.

The pupils can then practice the designing of notices, posters, programmes, title-pages, book-covers, greeting-cards and monograms, which they may execute in black ink, in black and red inks, or occasionally in a limited number of colours.* They will thus acquire a certain standard of taste which will enable them to discriminate between good and bad printing, and to understand "display" in printing and typewriting.

Ornamental borders, initial letters, head and tail pieces, drawn with the pen or brush or with both, will be a natural development of the practice in lettering. Some of the abler pupils may like to bring together in the form of a book a number of examples of their work. This will give an opportunity for another form of artistic expression which has been carried out with success in schools, namely, the production of block-prints or lino-cuts, which can be used for the illustration of the school magazine. This is really a development of the idea already suggested by printing or stamping patterns, and an easy way of approach would be to let the pupils cut in linoleum a monogram or cypher of their own initial from which they can print a "book-plate" for their own use.

43. The Training of Taste.—Opportunities will frequently occur in the drawing course for the consideration of beauty of form and colour in the things drawn, and the lessons will thus furnish a real training of taste. With this purpose in view, the teacher will exercise care and discrimination in the selection of subjects for drawing. Mean and ugly things will be studiously avoided, and only those will be drawn which are well-shaped, well-constructed, and well-fitted for their purpose; while, if the objects are ornamented in any way, the choice will fall on those in which artistic taste is shown both in form and colouring. It will be noted also that even the common things in everyday use often possess a certain kind of beauty, for they have attained a definite degree of perfection through long years of evolution in


* Four examples of manuscript by students in Training Colleges are reproduced in half-tone at the end of this chapter. (Plates I-IV.)

human service. The teacher will also seize every opportunity of bringing to the pupils' notice various examples of artistic workmanship such as may be seen in museums and art galleries, in historic buildings, in many village churches, and sometimes in shop windows ; while pictures, drawings and photographs will be secured whenever possible and used for reference when the originals are inaccessible. The study of good pictures may be of great value in developing the artistic instincts of the children, especially when the study is directed by a person possessing artistic knowledge and taste. Above all, the teacher who fully appreciates nature will realise what an inexhaustible storehouse is available and will lead his pupils to observe with wonder and delight the beautiful combinations of colour in flowers, birds, butterflies, and other living creatures, the graceful forms seen in flowers, fruits and seed-vessels, in the shapes of leaves and trees, in the sweeping curves of grasses and lilies, in the movements of most living creatures, and in countless other natural things. Such an attitude towards nature can hardly fail to leave in the minds of receptive pupils a reverential regard for a Power infinitely beyond the greatest achievements of man, and will enable them to form a truer estimate of the value of human endeavour.

Guard well
within your-
self that
treasure, kindness.
Know how to give
without hesitation,
how to lose with-
out regret, how
to acquire without
meanness.



IF I HAVE FALTERED MORE OR LESS ❖❖❖❖
IN MY GREAT TASK OF HAPPINESS; ❖❖❖❖
IF I HAVE MOVED AMONG MY RACE ❖❖❖❖
AND SHOWN NO GLORIOUS MORNING FACE;
IF BEAMS FROM HAPPY HUMAN EYES ❖❖❖❖
HAVE MOVED ME NOT; IF MORNING SKIES,
BOOKS, AND MY FOOD, AND SUMMER RAIN ❖❖
KNOCKED ON MY SULLEN HEART IN VAIN:-
LORD, THY MOST POINTED PLEASURE TAKE
AND STAB MY SPIRIT BROAD AWAKE; ❖❖❖❖
OR, LORD, IF TOO OB DURATE I, ❖❖❖❖❖❖❖❖
CHOOSE THOU, BEFORE THAT SPIRIT DIE,
A PIERCING PAIN, A KILLING SIN, ❖❖❖❖
AND TO MY DEAD HEART RUN THEM IN.


 ull fathom five thy father lies;
 Of his bones are coral made
 Those are pearls that were
 his eyes:
 Nothing of him that doth fade
 But doth suffer a sea-change
 Into something rich and strange.
 Sea-nymphs hourly ring his
 knell;

My brothers, he said,
God give you peace,
much should you praise
and love your Creator,
brother birds, for he has
given you feathers for
clothing, and wings for
flight and all that you
have need of.

God has given you a
dwelling in the purity
of the air, and though
you neither sow nor
reap yet he keeps and
feeds you!

St Francis.~

CHAPTER IX.

HANDWRITING.

SUMMARY OF CONTENTS.

Section.

1. **Modern Views on Handwriting.**—Handwriting a form of language and a form of craftsmanship.
2. **Legibility the Essential Quality of Good Handwriting.**—What constitutes legibility.
3. **The First Steps in Learning to Write.**—Unjoined print-script the basis. The question of slope. The place of guide-lines.
4. **The Use of the Pen.**—The choice of pen-nib. The advantages of the broad-pointed pen.
5. **The Development of a "Cursive" Hand.**—The transition from the unjoined script to a semi-cursive hand from about the age of ten.
6. **Posture in Handwriting.**—Important to prevent children from acquiring wrong habits of posture.

1. **Modern Views on Handwriting.**—The statement is frequently made that handwriting in schools has been neglected in recent years. It is true that the amount of time allotted to the formal mechanical practice of writing

has been curtailed, but the subject has received more thought, discussion and experiment than in former years when the traditional devotion to the copper-plate style was almost unquestioned. Moreover, the vast increase in the use of printed matter, and the widespread use of the typewriter and other inventions such as addressing and tabulating machines, have greatly diminished the importance assigned to writing in the days of Mulcaster.*

At a time of transition like the present, it is necessary to consider the new conditions which have arisen and to attempt to give handwriting its proper place in the modern curriculum. To do this it is necessary to realise that there are two clearly marked points of view from which the subject may be regarded. On the one hand handwriting is a necessary practical accomplishment, for it is one form of language, serving for the expression, communication, and recording of thought. On the other hand, it is a form of craftsmanship and may be a beautiful expression of Art. These considerations have led in the present century to a revival of interest in handwriting and to a closer investigation of the work of the scribes who practised the art before the invention of printing.

2. **Legibility the Essential Quality of Good Handwriting.**—Writing, like printing, employs certain conventional signs, and the greater the deviation from the accepted standard the greater the difficulty of deciphering what is written or printed. This does not imply a stereotyped uniformity in writing: in fact, this is impossible, for it is extremely difficult for two persons to write exactly alike. But it does mean that any person whose writing shows fantastic variations from the standard forms is wasting the time of all those who may have to decipher the writing. It seems

* "And writing it selfe hath profited so much, since it hath bene perfited, as it now proues the proppe to remembraunce, the executour of most affaires, the deliuerer of secretes, the messenger of meanings, the enheritance of posteritie, whereby they receiue whatsoeuer is left them, in lawe to liue by, in letters to learne, in euidence to enioye."—Richard Mulcaster, *Positions* (1581).

clear, therefore, that in teaching writing the primary aim should be to secure a close imitation of the best standard forms. When these forms are so impressed upon the mind and muscles of the pupils that they can be written automatically, certain small peculiarities due to individual qualities, mental and physical, will naturally and inevitably arise.

Writing is meant to be read, and legibility comprises all the characteristics which make for ease of reading. The most important of these are :—

- (a) *Distinctiveness*.—Each letter should have a characteristic form of its own.
- (b) *Simplicity*.—The letters should have no unnecessary parts.
- (c) *Spacing*.—The letters in a word, the words in a line, and the lines in a page should not be crowded too closely together or spread out too far.
- (d) *Uniformity*.—Whatever style the individual writer adopts should be uniform in size, spacing and alignment, and particularly in the direction of the straight strokes.

Legibility also depends upon other factors which are often forgotten. First, there must be that strong contrast of tone between the writing and the writing surface which is secured by the use of good black ink or pencil upon white or nearly white paper. Further, there must be a reasonable proportion between the size of the writing and the thickness of the strokes : small writing with too broad a pen and large writing with too fine a pen are both difficult to read. The experience of many centuries has shown that when a broad pen is used a clear and pleasing appearance is given to the manuscript by making the height of the small letters from four to five times the width of the nib. Other conditions affecting the size of the writing are the

purpose for which the writing is required, the materials with which it is done, and the age and skill of the writer.*

3. **The First Steps in Learning to Write.**†—All teachers of young children are familiar with the difficulty which arises from the use of different alphabets for reading and writing, the shapes of many of the printed letters differing considerably from those commonly used in writing. The difficulty is accentuated by the great differences sometimes existing between the “capital” and “small” forms of the same letter. Many teachers in this and other countries have within the last decade found a way out of the difficulty by realising that the “skeleton forms” of the Roman alphabet—that is, the “essential forms” obtained by eliminating all but the characteristic strokes—furnish the

* Teachers may find useful the following detailed directions which the Civil Service Commissioners include in the syllabus of an examination, such as that for Telegraphists and Sorting Clerks, in which special importance is attached to handwriting. These directions, it is to be noted, are intended merely to “guide the candidate to increased legibility.”

- “ (1) Each letter and each figure should be clearly and completely formed, so as to avoid the possibility of one letter or figure being mistaken for another. Flourishes and superfluous strokes should be avoided. The slope from the vertical should be even and not too great; back-sloping tends to reduce legibility.
- “ (2) The characters should be of moderate and even size. The height of the short letters should not be more than three millimetres, and the projection of the longest letters above the short letters and below the line should not be more than one-and-a-half times the height of the short letters.
- “ (3) The words should be neatly spaced, no word being connected by a stroke with the following word or separated from it by too wide an interval. If the letters of a word are not united by strokes they should be so placed that the word clearly forms a whole.
- “ (4) The writing should be in straight lines, running parallel with the top of the page. The intervals between lines should be even and sufficient to prevent the intersection of loops and tails.”

† This chapter is written from the point of view of right-hand writing and does not necessarily apply to the small proportion of children who are naturally left-handed. Modern opinion is opposed to forcing left-handed children to write with the right hand.

basis for both printed and written letters; and they, therefore, employ these essential forms for both reading and writing in the early stages. The name—"print-script"—commonly employed for the skeleton letters, is an unfortunate one, for all writing is really script and all print is not; but the meaning is sufficiently clear.

The simplification thus introduced is enormous: all the letters, printed and written, capital and small, are formed from various combinations of the whole or parts of

O L V.

It is found that little children take a great delight in building up the different letters from these simple elements. As it is important that a child's mental images—derived from sight, touch and muscular movement—should be clear and definite before he attempts to co-ordinate the complicated movements necessary for writing, he should have opportunities of constructing the letters in various ways and should be familiarised with their shapes in card, wire, wood, etc., before being set to write them. Only the best and most perfectly formed letters should be used as models and particular care should be taken that the basic O is nearly round.

The act of tracing with the finger the shapes of letters cut out of fine sandpaper or of embossed and indented letters, will greatly assist in establishing the harmonious co-operation of the various "controls" upon which the act of writing depends. The first efforts in actual writing should be made with materials offering little resistance and requiring large movements, e.g., with the finger in sand, with chalk on a board, or with pastel on paper. There is much, too, to be said for teaching all children at this stage to do "unseen writing" in accordance with the practice adopted in some schools for partially blind children. This consists in training the children to stand at a blackboard and write without looking at what they write.

The beginning of writing necessitates a decision as to whether the writing shall be vertical or sloping. This question has been the subject of much argument, but it is probably true that the closer the resemblance between the printed and the written letters the greater the ease in reading and writing. Individual preferences, however, must not be entirely ignored; and if it should be found that certain children, though sitting in the proper posture and trying to write vertically, naturally write with a slight forward slope it would be wise to let them continue to do so; but a backward slope due to incorrect posture should be corrected, as it is detrimental to speed and legibility.

From the first, the writing of single letters should be avoided as far as possible: the grouping of the letters to form little words will be found far more interesting, especially if the words are associated with pictures. The old plan of learning the whole of the alphabet before attempting to read and write words ignored the fact that the essential thing is recognition of the word rather than of its component letters. Hence the small letters, which form the bulk of our reading matter and are therefore of greater importance than the occasional capitals, should be taught first. The capitals should be introduced gradually as they are required for proper names or the beginning of sentences. In writing, the small letters, *i*, *l*, *t*, need special mention, for although

the essential forms are *i | l t*, it is better to write these letters (as did the ancient scribes) with a basal curve,

i l t, in order to secure proper spacing of such words

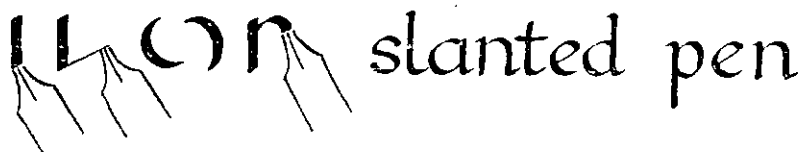
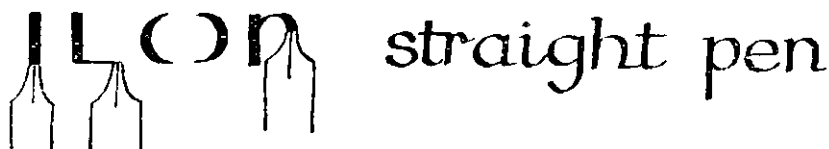
as *till*, *title*, *little*.

When the children are able to write fairly well with chalk or pastel, they may begin writing on paper with a fairly soft blacklead pencil. The use of a hard pencil (which is very common in schools) leads to bad habits both in writing and drawing.

There has been much controversy as to the use of guide lines, and there is no doubt that they are to some extent a hindrance to freedom and rhythm of movement ; but on the other hand a guide to horizontality is necessary. While it is obviously absurd to employ five guide lines, as many copybooks used to do, the other extreme of no lines at all cannot be recommended for beginners. A compromise is advisable, and many teachers who have made the experiment have found that the following plan, which was adopted by the ancient scribes, leads to good results :—The pupils are supplied with paper ruled like foolscap and they write between the lines—not touching them, but using them merely to keep the horizontal direction and regular line-spacing.

4. The Use of the Pen.—The next step is the introduction of pen and ink. It is important that at the outset the difficulties connected with the manipulation of the pen should be overcome. Children who have acquired bad habits in using the lead pencil will now be under a great handicap. If good writing with the pen is to be attained, the pen should be held so that both tips of the nib touch the paper squarely and with equal pressure. Experiment has shown that the most direct way of securing this essential to good writing is again to imitate the ancient scribes and to use a broad pen, which is difficult to move at all unless both the nib-tips are properly in contact with the paper. But most teachers are wedded to the sharp-pointed pen, which will make marks of some sort no matter how it is held. The only way of making a broad stroke with the sharp-pointed pen is by pressing on the nib, and it is only by varying the pressure that it is possible to imitate the old copper-plate style. When a broad pen is used, the width of the nib itself gives, without additional pressure, a broad stroke in one direction, a narrow stroke in another direction, or a graduated curve, at will, and thus the pen itself secures one of the attributes of beauty in writing—variety and contrast. The use of the broad pen also gives rise to two distinct styles of writing, both possessing a

beauty of their own—"straight-pen writing" and "slanted-pen writing"—so called from the manner of holding the pen. From the following illustration it will be seen that the terms "straight" and "slanted" relate to the alignment of the points of the pen-nib and are not used here in the sense of "perpendicular" and "out of the perpendicular."



The differences thus produced in the shapes of the strokes are comparatively slight, but their total effect in a page of writing is quite remarkable, as may be seen by comparing a page of a "straight-pen" manuscript such as the Book of Kells or the Durham Book (Lindisfarne Gospels), with a page of a "slanted-pen" manuscript of the 10th, 11th, or 12th Centuries. The "straight-pen" mode of holding the pen is probably not so convenient: it was not practised by the ancient scribes for more than a few centuries. Most people find it easier to hold the pen in a slanting position.

5. The Development of a "Cursive" Hand.—In actual school practice many teachers will probably adhere to the sharp pen; and in that case normal children, whose writing practice has been carefully supervised, will generally by the age of 9 or 10 years write the *unjoined* skeleton script quite well, probably as well as they will ever be able to do. Even if they go no further—as may happen with older scholars below average ability—they will have acquired a neat and legible script which will stand them in good stead. They may, however, be seriously handicapped in

certain occupations, if they can do nothing more than this, when they leave school. It is necessary, therefore, to make a forward step of some sort.*

In schools where the sharp pen is retained the *unjoined* script hand should gradually be converted into a "running" or "semi-cursive" hand by joining such letters as can conveniently be joined without distorting their proper forms, and by introducing alternative forms for some of the capital letters so as to avoid lifting the pen too frequently.

For example, **m** and **n** may be substituted for **M** and **N**, **y** for **Y**, and so on, while such a

letter as **B** instead of being made by two separate

pieces **B** may be written **B** without lifting the pen.

Loops should be avoided as far as possible, as they are the chief cause of divergence between printed and written forms. There is no need whatever for children to unlearn what they have already learnt and to go back and start again with the old-fashioned copper-plate writing, as is often done. The running or semi-cursive hand, which can be developed from the unjoined script, meets all the practical requirements of everyday life, business included.

* Whatever style of handwriting may be adopted for the later stages of school-work, there are many practical purposes for which teachers will find it useful to retain the *unjoined* skeleton print-script, e.g., scientific records, mathematical calculations, geographical diagrams and maps, and various purposes in the industrial arts and crafts. There are advantages, too, in the use of a simplified form of numerals for work of a practical and artistic character. Experience shows the value of using for such purposes figures without "tops" or "tails" (ascenders and descenders). Thus:—

123456789

A sample of a semi-cursive handwriting, which is considered worthy of full marks in the Civil Service Examinations for the Clerical Class is here reproduced* from the "Pamphlet showing Handwriting of Adequate Proficiency for various Examinations held by the Civil Service Commissioners." (H.M. Stationery Office, 1926.) Samples of other styles are also given in the pamphlet.† In this connexion it should be noted that in a memorandum on handwriting issued by the Commissioners, the statement is made that "preference will not be accorded to any particular style of handwriting; printscript (in which the letters resemble the type used by printers) and the ordinary cursive hand are equally acceptable."

In schools where the teachers are willing to break away from the 19th Century tradition and to adopt a style of writing different from that commonly in vogue, the first forward step will be the introduction of a broader pen. To get accustomed to this the pupils who can already write good script with a sharp-pointed pencil or pen should for a few months practise writing similar forms with both the sharp-pointed and with the broader pen and should note the changed

appearance of the writing:— sharp broad

After that it is but a slight step to the real manuscript forms, all that is needed being the addition of "serifs," which are made by a slight sideways movement of the pen

at the beginning or end of the letter: thus, **M** becomes

m, **n** becomes **n**, **r** becomes **r**, and so forth.

* See pages 324, 325 (Fig. 2).

† On pages 323, 326 (Figs. 1, 3, and 4) are reproduced some examples of the everyday writing of grown-up persons whose speed is well above the average. Examples 1 and 3 are based upon simple print-script with such joinings as conveniently arise. Example 4 shows the influence of a finished manuscript style such as is illustrated in the chapter on Drawing (Chapter VIII, pages 307 to 310).

The serifs must not be too large, like the hooks in old copy-books : a mere flick of the pen is all that is needed. A style of writing may thus be developed which, when written with care, will become a formal manuscript style suitable for artistic purposes, or when written more rapidly will become a semi-cursive style suitable for everyday use.

Formal manuscript writing, like the "book hand" of the centuries before printing, is really an artistic craft in itself and should therefore form part of an Art Course. Reference is made to it in the chapter on Drawing, and it is dealt with in various books which give full instructions and good alphabets for use as models.

6. Posture in Handwriting.*—Correct posture in handwriting lessons and in any lessons in which the children write is of very great importance. A child when preparing to write should be required to sit upright and squarely on the seat with his shoulders level and parallel to the desk or table and with his feet placed firmly in front of him on the foot-rest or on the floor, the weight of the body being evenly distributed so as to avoid the hunching-up of one shoulder. His head should be so held that his eyes are about a foot away from the paper. His chest should be clear of the lower edge of the desk. Both forearms to within 2 or 3 inches of the elbows should rest lightly on the desk. This position, which allows of all the writing movements being made freely and, at the same time, gives support against muscular fatigue, can be secured if the seats are the right height, are placed at the right distance from the desks, and are provided with suitable back-rests. It also renders it unnecessary to bend the back or spread the elbows out too far from the sides of the body. If, however, this attitude is found to be tiring both to back and wrists, to prevent relapse into some wrong position, the alternative plan may be adopted of resting the left forearm on the edge of the desk, with the left hand ready to steady and control

* For a fuller consideration of the problems of the hygiene of handwriting, the reader may consult such books as *The Fundamentals of School Health*, by Dr. James Kerr.

the paper (which may even be slightly tilted to the left), the right forearm also being on the desk. Particular care must be taken that the child does not get into a sprawling attitude with the left elbow too far on the desk. In this connexion, teachers should be specially careful not to allow a child to put his hand round above the writing with the idea of preventing a neighbour from "copying." The teacher's vigilance should be exercised in preventing children from acquiring during the early stages wrong habits of posture such as may become ineradicable and distort the normal and healthy growth of the body.

In my opinion it is a very sound idea that writing should be based on print-script, with a few special forms of letters introduced from the start in order to facilitate development into a cursive hand, or that after a certain point has been reached the linking up of letters should be encouraged in order to gain the necessary speed. Print-letters are easier to learn & easier to read, & I don't think that a handwriting based on Print-letters is so liable to degeneration, probably

Cereals and meat are the
 The 1923-24 cereal crops were exce
 export about 4,470,000 tons of wh
 3,800,000 tons of maize, and 570
 next season about 17,950,000 acre
 5,975,000 acres with linseed, and
 oats, barley and rye: In all th
 4.4 per cent on the area covered

The export of beef to
 important part of the trade of a
 Argentina beef has been created
 increase. Argentina cattle farmers
 were complaining of their prosper
 prices for their stock.

the chief exports of Argentina.
 excellent; they left available for
 wheat, 1,360,000 tons of linseed,
 570,000 tons of oats. For the
 acres have been sown with wheat,
 and about 4 million acres with
 there is an increase of about
 by the same crops last year.
 Europe has become a most
 of Argentina. A strong demand for
 and the demand is likely to
 farmers, who, a year or so ago,
 prospects, are now getting good

by carefully studying such examples as we can find, and acquire a practical knowledge of it by copying from them with pen or chisel.

FIG. 3.

EARLY PRINTING was in some points inferior in technical excellence to the best modern typography. But the best early printers used finer points of type and better proportions in the arrangement and spacing of their printed pages; and it is now generally agreed that early printed books are the most beautiful. It would repay a modern printer to endeavour to find out the real grounds for this opinion, the underlying principles of the early work, and, where possible, to put them into practice.

FIG. 4.

CHAPTER X.

HANDWORK.

SUMMARY OF CONTENTS.

I. GENERAL CONSIDERATIONS.

Section.

1. **The Use of Handwork.**—It helps the child to do and make the things he wants.
2. **Its Value to the School.**—It adds reality to other subjects. It develops self-reliance.
3. **Its Relation to Art.**—It applies the principles of art to construction.
4. **Stages of Instruction.**—It should be taught throughout the school life. The Junior and Senior Stages. No differentiation between the work of boys and girls in the Junior Stage. How to co-ordinate the work of the Centre with that of the School.

II. THE JUNIOR STAGE.

5. **The Earlier Years.**—Special points: experience and experiment; the choice of materials; kinds of lessons; group work.
6. **The Later Years (8-11 years of age).**—Two types of work: expression work and model-making; working to design.
7. **Some Difficulties.**—Large classes; supply of materials; classroom equipment.
8. **Results to be secured by the End of the Junior Stage.**—To draw and measure with fair accuracy and understand a plan. The work to follow.

III. THE SENIOR STAGE.

Section.

(i) BOYS.

9. **Woodwork and Metalwork the Basis of the Handwork for Older Boys.**—The reason for this. The teacher should think in terms of "interests" rather than of materials.
10. **Choice of Objects to be made.**—They should be useful, or scale models of useful objects. Whence derived. The boy should often choose. The inspiration of the teacher.
11. **Drawing.**—Its necessity. Too high a standard not to be required at first. How to start.
12. **Constructive Design.**—To be planned in part by the boy. Sources of ideas. Procedure in dealing with the boy's designs.
13. **Decorative Design.**—Only separated from Constructive Design for convenience. The training in taste. Visits to museums. Ornament a matter of material.
14. **Definite Training in Technique Necessary.**—The progressive training in the use of tools. Changing views regarding technique. The practice of "joints." Time tests. The "good job." Boys should do much of the tool sharpening.
15. **Finish.**—Why necessary.
16. **Repairs.**—Home-repairs should be taught.
17. **Hobbies.**—How to encourage. Homework.
18. **The work of the Second and Third Year Boys.**—Courses often unsatisfactory in the past. Need for affording scope for originality.
19. **Examples of More Advanced Work.**—For use in school; for use at home; games and hobbies; simple art-crafts.
20. **Handwork in Central Schools.**—What is possible in Central Schools. Cabinet-making. The making of scientific apparatus. Tool-making.
21. **Rural Handwork.**—Its possibilities. Suggested lines of work.
22. **Equipment of Practical Rooms and Centres.**—The Workroom; the Centre.
23. **Reference Library.**—A necessary part of the equipment. Suggested books.

(ii) GIRLS.

24. **Handwork for Older Girls.**—A recent development. Various experiments. It requires special qualifications in the teacher. Unwise to attempt too many crafts. The timetable.

I. GENERAL CONSIDERATIONS.

1. **The Use of Handwork.**—The term “Handwork” in its widest meaning implies the use of the hand to carry out effectively the directions of the brain, and is applicable to every disciplined use of the hand, from writing to craftwork of every kind. In practice, however, the term “handwork” is usually restricted to the use of the hand for making things in materials of various kinds. In simple language, handwork helps the child to do and make the things he wants. Incidentally, in doing and making, he develops his manual skill and acquires a certain attitude of mind which can be developed in no other way; he gets a constructive sense and a working knowledge of materials—what can and cannot be done with them—and acquires a power of visualising construction. He gradually realises that skill of hand is an invaluable possession.

2. **Its Value to the School.**—In the school Handwork has other values. Many people have little power of abstract thought and can only be educated by means of concrete things. For children, in particular, handwork can add reality to almost every subject of the curriculum. Thus in mathematics, handwork gives a concrete and lasting experience of number, magnitude, proportion and symmetry; it helps to satisfy the child of the reasonableness of the processes which he employs; it suggests and smoothes the road to new conceptions. And, generally, in every subject it clarifies and intensifies the mental pictures of things in a way that is never forgotten.

Handwork is specially useful in developing self-reliance and a will to persevere, since these qualities are essential for, and are rewarded by, the production of tangible and permanent results. It also offers excellent opportunities for the cultivation of resourcefulness, adaptability and initiative, and the wider its range the more fruitful it is likely to be in these respects. It is of value also in helping children to realise the importance of accuracy, for mistakes in the concrete are easily recognised and can seldom be erased or wholly corrected.

3. **Its Relation to Art.**—Handwork stands in such an intimate relationship to Art that it can provide many opportunities for the children to express in concrete form the artistic ideas which they should gain through their lessons in drawing. They should from the beginning be trained through their handwork and their drawing to appreciate beauty of form and colour, of material and of craftsmanship, and to realise that a well-made object, which fulfils its purpose and is well-shaped and well-proportioned, may be in itself a thing of beauty needing no extraneous ornament. The task before the teacher is to secure good and sensible construction of things with materials suitable for the particular thing which is being made, and to see that the relation of decoration to construction is rightly understood. If the teacher has an artistic sense, the things made by the children will be artistic because the construction is good, the proportions and arrangement of the various parts pleasing to a trained eye, and, when coloured materials are employed, the colour schemes are harmonious and beautiful. This aspect of handwork is dealt with later on in the section on Decorative Design.

4. **Stages of Instruction.**—It is generally agreed that Handwork should extend over the whole of Elementary School life in a continuous and progressive course. To secure such continuity the syllabus for the whole school should be in the hands of every teacher so that each may know not only what is to be done in his own class, but also what has been done by the children in the lower classes, and what they will do in the higher.

The course falls naturally into two stages : one extending up to the age of 11–12, when many children are transferred to other schools ; the other covering the remaining years of school life. In the earlier or *Junior* stage, the child first acquires through play and conscious experiment a knowledge of the characteristics of the more tractable materials, and discovers what he can make with them. In the later years of this stage tools should begin to supplement the use of the hands ; the need for accurate measurement is gradually realised ; and attention may be concentrated for a

longer time on the problem how to make an object which fulfils a given purpose. In the later or *Senior* stage, more intractable materials which require greater strength for their mastery will be introduced, and accuracy and sound construction become of first importance. The attempts of the pupil to make things should now be limited to what can be satisfactorily accomplished with the means available, and inventiveness should be directed towards the construction of objects fulfilling a definite purpose within his comprehension.

In the Junior stage there will be no differentiation between the work of boys and girls, excepting that in accordance with English school tradition needlework is learnt by girls only. In the Senior stage the work of boys and girls is generally differentiated, not on grounds of principle, but because the demands which housecraft and needlework make on the time-table for girls render it very difficult for them to give the time required for mastering the more intractable materials that are used by boys, and for acquiring the necessary toolcraft.

The work of the Senior stage necessitates special equipment and is accordingly generally done in special buildings to which boys from a number of schools go in turn for their handwork. This should not mean that their handwork ceases to be an integral part of their school course. Handwork will only achieve the best results if the co-ordination between the general work of the school and the Handicraft Centre is of the closest possible kind. Even when the instruction is given in a special Centre at some distance from the school, steps should always be taken to secure co-operation, on the one hand by the headmaster and staff looking upon handwork as still a part of the schoolwork and visiting the Centre to see their boys at work, and on the other by the teacher of handwork visiting the school to keep in touch with the work of the boys there.

II. THE JUNIOR STAGE.

5. **The Earlier Years.**—The field of handwork for the Infants' School or Class has been so well explored that it is

unnecessary to deal with it at any length. It may, however, be useful to call attention to the following points :—

(a) During these years the child learns chiefly through his experience and experiments. From his earliest years he has used his hands to explore the nature of his surroundings. By handling material things he discovers his powers over them, learning what he can and cannot do with them, and so lays the foundation for that knowledge of material which in later years becomes instinctive. It is the teacher's part to widen his experience of things by introducing him to fresh materials at the appropriate moment. Before long the child will want to use his knowledge of what can be done with materials to make things which will give reality to his world of make-believe, and so long as the teacher does not interfere with his spontaneity, she can help him by suggesting better ways of carrying out his ideas, while, a little later, she can widen the scope of his experiments by suggesting new ideas of things which he can make.

(b) In all constructive work the child should be free to choose the most suitable material. It is unwise, accordingly, to limit the freedom of choice by dividing handwork into specific branches which depend on the material used, such as paper-folding, or clay-modelling.

(c) The first lessons will naturally be those in which the children attempt to carry out their own ideas. Though a child should be allowed to make an object in his own way, it is, as a rule, a mistake to accept his unaided production as final ; for while the soundest mode of progress is through personal experiment, his time and opportunities are in some degree wasted when he is not taught to learn from his mistakes. His work should, therefore, be compared with that of his teacher or class-mates, and should be criticised by them, so as to lead him to improve upon his own attempt if he is able to do so. Nor should "free expression" always mean that the children are to be allowed to make what they like without guidance or suggestion.

(d) At a later stage there will be lessons in which the teacher gives definite instruction to a class as a whole. But it is clearly wrong to restrict the child entirely to imitative

exercises in which he follows step by step the procedure of the teacher, since even young children should have abundant opportunities for thinking out things for themselves.

(e) Finally there will be lessons in which the children attempt individually to follow given directions.

(f) The "Group" or "Team" organisation is specially useful in handwork. Children may thus work in small groups, each group being under the direction of its best craftsman.

6. The Later Years.—By the time the child leaves the Infants' School, he should have become more critical of his own productions and no longer satisfied with crude results. He should therefore be ready to see the necessity for accurate measurement, to examine the construction of things, and to learn how other people have succeeded in making them.

Handwork at this stage may be conveniently divided into two types :—

- (a) The expression of ideas derived from lessons, and the representation of objects from memory or imagination.
- (b) The construction of objects in accordance with designs or directions.

As a rule, in handwork of type (a) the child attempts to represent in an object, ideas which are dominant in his mind as a result of some lesson or story or some experience he has undergone. For this purpose plastic materials are usually employed, since they are more readily manipulated and permanence is not required in the result. Work of this kind sometimes reaches a high degree of excellence in the junior classes of elementary schools, but teachers are often content with too low a standard of accuracy. Children of this age can without undue strain reproduce faithfully in clay or other suitable plastic material all the details of a fruit or a spray of leaves or a simply fashioned object. The teacher should always try to lead the child to improve on a first attempt.

In many schools this type of handwork includes the making of models to illustrate lessons in history and geography, e.g., a Norman castle in cardboard, or a relief map in paper pulp of some kind. This work has a more permanent value than that described above.

Handwork of type (b) affords opportunities for the first serious attempts at planning. The child may be asked to prepare rough sketches of the object he wants to make, and he may be led to draw plans and elevations of his finished model and so to understand simple scale drawings. This is a very good introduction to the more formal designing on paper of an object before it is made, which forms an important part of the work of the Senior stage.

7. **Some Difficulties.**—Three general difficulties which occur more particularly at this stage may be discussed here :—

(i) *Size of Classes.*—While at the top of the school the ordinary classes are often divided for handwork, in the middle stage large and undivided classes are usual. One partial solution of this very real difficulty has been found in the application of the "Group" or "Team" plan previously mentioned, which is particularly suited to children of this age.

(ii) *Supply of Materials.*—This difficulty is more acutely felt during the Junior stage, because while the objects made are seldom of intrinsic value, the consumption of material is usually considerable and the quantity required for a large class may thus be very large. Although further investigation might well be made into forms of handwork which are economical of material, a few suggestions may perhaps be offered :

(a) Waste material, such as old cardboard, short pieces of wall-paper, sheet metal, wire and thin wood, corks and spools, should be used as far as possible.

- (b) Even at this stage really useful objects should, where possible, be made, e.g., raffia and basket-work, netted objects, wool and rush mats, slippers in felt with soles of rope or jute, miscellaneous boxes of cardboard (for holding gloves, collars, etc.), purses and bags.
- (c) Simple bookbinding has also been found practicable at this stage and gives good opportunities for employing paper and cardboard in a reasonable way.
- (d) Light woodwork, for which plasterers' sawn laths have been found a convenient form of material, is very suitable for children of 10-12 years, though inadequate for older pupils, and allows a number of serviceable objects to be made with small equipment.

(iii) *Classroom Equipment.*—The work has usually to be done on the ordinary desks and praise is due to the many teachers who have accomplished very creditable work with a makeshift equipment. In future it is hoped that more schools may possess a "Practical Room." Where the school is small this practical room will be used by both juniors and seniors, and may also be required for ordinary classroom purposes. In the case of a large town school it might be possible to set apart one classroom specially for the handwork of the junior classes. This room would be furnished with tables and chairs or stools or with level-topped desks, but it is possible to manage with detachable table tops fitted on the ordinary desks. Some shelving, adequate cupboard accommodation, a Bunsen burner or two, and a clay box would be useful additions. Suggestions for the equipment of the "Practical Room" for senior scholars are given in Section 22.

8. Results to be secured by the End of the Junior Stage.—If the training during this stage has been sound and complete, the pupil, towards the end of it, should be able to draw and measure with fair accuracy, and to understand a plan and elevation. Henceforth, he should begin, not only to devise such objects and contrivances as he wants to make, but to think out beforehand the construction he will adopt in making them and to show his design by means of sketches or plans drawn to scale. As a result of his steadily developing muscular control, he should be able to deal with more resistant materials, to use a greater variety of tools, and to work with more precision. His desire to create objects which will serve a useful purpose in his world will be strengthened by his experience that he can, in fact, make them by the taking of pains and the exercise of perseverance and he should thus grow less and less satisfied with slipshod work.

III. THE SENIOR STAGE.

(i) Boys.

9. Woodwork and Metalwork the Basis of the Handwork for Older Boys.—The leading purpose of the handwork in the Senior Stage is to give mastery over the more resistant materials so that the boys may execute with skill and precision ideas which rightly involve the use of such materials. Since wood and metal are the most useful of these materials and offer the greatest scope for constructive work, and since it takes considerable practice to master their use, they will naturally form the basis of all handwork for older boys. This does not mean that it is necessary to devise separate courses of woodwork or metalwork, or to confine the work to these materials. The teacher will think in terms rather of "interests" than of materials, and any available material which is proper for the immediate purpose in hand, whether it is clay, fibre, leather, cardboard, wood, metal, glass, or any other which can be worked by the boys, should be used when the circumstances require it. Obviously every school will not develop the work in the different materials to the same extent.

Although the following sections are written chiefly from the point of view of woodwork, the underlying principles apply to the use of any other material.

10. Choice of Objects to be made.—It may be laid down as a useful general principle that real objects of utility, or at least working or scale models of such objects should be made. Ideas should be sought from the environment of the child—his home, his school, his games and hobbies, the daily work of his family and the community to which he belongs. With suitable safeguards the boy himself should frequently choose his own examples. In this case the choice and method of construction should be discussed in order to ensure that the object is within his power. He may be referred to books which can help him in his design and study well-made examples of the type of construction he proposes to undertake. The teacher should then give him as much liberty in the execution of the work as he deems possible. He will naturally be guided by the extent to which the boy has grasped the essential principles and processes of construction involved and has learnt the joints which will be used.

Since it is the teacher who directs the work, as a general rule the best work will be done where the teacher is most interested. He may be, for instance, a keen motor-cyclist, an amateur electrician, a wood-carver, or an expert model-maker, or he may be interested in poultry or bees. His own bent and enthusiasm are likely to be reflected in the work of the boys he teaches. And this is all to the good.

11. Drawing.—Preliminary drawings have always been regarded as the necessary accompaniment of work at the bench, and the view has been taken that unless the drawing was accurate and complete it was useless to expect accuracy in the object made. While there is much soundness in this point of view, it overlooks the fact that the power to make accurate working-drawings, which are the product of the scholars' own effort, must grow *pari passu* with ideas of construction and the power to manipulate tools. If drawings of the standard often demanded in the past are

insisted upon at the outset of the course, they can only be obtained at the expense of much time which could more usefully be given to bench-work ; and to a large extent they must be mere copies of the teacher's drawings. This is especially true when, as is too often the case, there has been no instruction in scale-drawing in the lower standards, whether associated with forms of handwork such as paper and cardboard modelling, or otherwise.

If, however, the co-ordination of the work of the School and Centre is effective, the boy should enter on his course of handwork at the bench equipped with a knowledge of simple plans and elevations, with the power to measure accurately to, say, $\frac{1}{16}$ in., and with some facility to represent common objects by pencil sketches. Even so, it would not be wise for the teacher to expect complete working drawings at once. The first step might well be as follows. If the child, for example, were about to make an object, such as a window wedge, a discussion would first take place as to the purposes which the object was intended to fulfil, and the boy would then be asked to make a rough dimensioned pencil sketch showing his idea of the object. This would be criticised by the teacher, compared with specimens of window wedges, and altered by the boy in essential particulars. A dimensioned sketch which has been passed as satisfactory might in the early stages be used as a "working drawing." The value of such sketches should, indeed, be recognised at all stages of the course and they should be carefully preserved in the pupil's note-book. If the boy has no preliminary knowledge of plans and elevations, he might be set to make these, in the first instance, after an object has been constructed, when he will have the concrete aid of the object in drawing various views of it. Orthographic projection when approached in this way presents little difficulty even to a beginner : there is no need to teach "oblique" or "isometric" projections at any stage. Later on, more and more accuracy and completeness of detail would be expected in the preliminary drawings, e.g., such details as the position of nails, the grain of the wood, the position of overlapping pieces of material ; and the

finished object should be required to agree with the measurements in a gradually increasing degree of exactness. By proceeding on these lines the boy would at each stage appreciate the purpose of his drawings; drawing would become in a real sense ancillary to construction, and classroom and workshop alike would contribute their share to the pupil's progressive training. Towards the end of the course he should be able to make and read simple working drawings or "blue prints" such as are used by a workman.

12. Constructive Design.—The method suggested for the construction of preliminary sketches and drawings implies a boy's designing or planning objects to some extent by himself. This is clearly desirable if he is to get the maximum of intellectual benefit from his handwork, and if his resourcefulness and ingenuity are to be successfully trained. At the same time, it is not suggested that a boy, particularly in the early stages, will be able to discover and visualise the construction of an object entirely without help; this would demand from the beginner the trained skill of the architect and designer. Ideas must be obtained from every source available—from the examination of finished objects, from examples in books and illustrations, from examples of good handicraft such as are found in many churches and other buildings in town and country, and from the teacher himself. At this stage the part played by the boy is rather to adapt designs to his own needs than to originate them. It is not suggested that a boy having made his preliminary drawing should necessarily be allowed to make the object in the way he himself proposes. The design must be criticised by the teacher, not only as regards details of construction, but primarily from the standpoint of the purpose intended. If the finished product does not fulfil this purpose satisfactorily, as, for instance, in the case of a mechanical toy which will not work, it will clearly be a failure, however "well made," and must be altered. Further, the boy's design must be such as to allow the work to be completed with due economy of time and material,

and time should not be spent in making continually objects easy of accomplishment but of no value for purposes of progress.

The extent to which the teacher refers drawings back for amendment will, of course, depend partly on the stage of advancement of the pupil and partly on the pupil's temperament. On the one hand, it would be unwise to press a boy to alter and amend his drawings to the extent of discouragement, and, on the other, it would be equally unwise to allow him to spend hours of effort on work which in the end would yield him nothing but dissatisfaction. In some cases, indeed, it may be wiser after several fruitless attempts by the pupil for the teacher to substitute a design of his own.

13. Decorative Design.—Although it is convenient for descriptive purposes to separate "Constructive Design" from "Decorative Design," in practical work it is desirable in most cases to consider construction and decoration as inseparable parts of the complete design. One of the commonest causes of inartistic ornament is the habit of looking upon decoration as something separate from construction: the object is first made and then decorated, as though ornament were something to be applied when construction is completed. In most examples of good craftsmanship, however, the ornamental features are inevitably bound up with the construction, and must have been foreseen from the start.

Throughout the work it must be realised that what is termed "good taste" is the result of experience, observation and discriminative comparison, and that the pupils usually lack suitable artistic experience even in the simplest matters. It is therefore necessary that both teachers and pupils should study and make drawings of good examples of crafts of all kinds, if possible in connexion with visits to museums and other public collections. Pictures and photographs of good craft-work and even actual specimens of such work (which can sometimes be obtained on loan) should form an essential part of the illustrations of the

Centre or Practical Workroom. These should frequently be referred to and discussed, so that the pupils may gradually come to distinguish good work from bad.

Through their practical work, and especially when they have worked with more than one material, the pupils will discover that certain shapes naturally arise from the use of certain tools and materials, and other shapes from other tools and materials. They will thus be led to realise that the kind of ornament most suitable in one craft may be very different from that which is characteristic of another craft and that what is suitable for wood will not do for metal, still less for leather or needlework. It has been found that the best results are obtained from the sparing use of the simplest forms of ornament, and any tendency to over-elaboration should be consistently discouraged.

In the chapter on Drawing (Chapter VIII), many suggestions have been given indicating various ways in which the natural desire of the pupils to make "patterns" may be encouraged and developed, and various crafts have been mentioned as affording opportunities for the practice of artistic craftsmanship by girls as well as boys. These suggestions need not be repeated here, but it is well to emphasise the fact that the nature lessons when accompanied by drawing as an essential feature, will also contribute greatly to appreciation of the beauty of natural forms and colours. Similarly, appreciation of the beauty of fashioned objects will be aided if care is taken in the drawing lessons that only good examples of such objects are set for the children to draw.

14. Definite Training in Technique Necessary.—Whatever the nature of the course may be, there should be progressive training in the use of tools. Generally, this involves in the early stages a set series of exercises which may or may not form part of useful models. No boy should be allowed to form bad habits of tool handling and a proper value should be attached to tool technique.

Formerly the tendency was to place too much emphasis on technique and consequently the boys were required to

make (generally in wood) a strictly logical series of prescribed models or exercises in which ability to use more difficult tool processes, to undertake more complicated constructions, and to manipulate harder materials, was increasingly demanded. Often a high degree of skill was achieved, but the pupils were in the main mere copyists. In recent years the tendency has been to belittle the necessity for technique and to give the utmost freedom to the boys in their work. Teachers are, however, beginning to discover that, without sound knowledge of tool manipulation and tool operations, the boy is unable satisfactorily to execute the work he plans. At first the enthusiasm of a boy for a new subject will carry him through a certain amount of drill in tool exercise which, if continued too long, would result in loss of interest. Later on, if a boy is trained to make or adapt designs for his own work he will patiently practise the joint to be used in his own model, and experiment with the construction on which depends its efficiency, as and when the need arises. Thus, what would otherwise be a monotonous drill becomes a practice of immediate necessity and purpose.

Sometimes, however, detached exercises are salutary; for instance, where a difficult "joint" is taught, such as a mortice and tenon or a dovetail joint, it is usually best to practice this separately before using it in the construction of an article. The technical considerations involved in making a good mortice and tenon are a quite sufficient tax on the intelligence and handiness of the ordinary boy. If the joint is made for the first time as part of an article, the average boy is distracted by other considerations than the very necessary technical ones involved in the particular joint.

It is often found that an excessive amount of time is spent on one particular piece of handwork and the progress is correspondingly slow. Some teachers have found that a "time test" at regular intervals has a thoroughly healthy effect upon the boys. In a test of this kind, a piece of work is set in drawing and in handicraft which has to be executed by the whole class with a rigid time limit.

The final test of good tool handling is, of course, that it produces good work in reasonable time and the disciplinary effect of a "good job" should be kept in mind. It is, at least, as easy to be slovenly in handwork as in any other subject. But in handwork care and accuracy bring their own immediate reward, while carelessness and bad craftsmanship result in obvious failure.

The position to which most teachers are gradually coming is that while they recognise the importance of individual experiment they agree that in the early stages there is need of some definite guidance and training in technique. The fisherman must learn how to cast his fly; the golfer how to stand and swing; and the boy must learn to plane straight, to use a chisel and a saw, and to make and read a drawing. How far this definite instruction in technique should be carried, in what manner it should be done, and for how long it should be continued, will depend very largely upon the individual boy and the scope of the instruction. But as early as possible in the course the boy should be encouraged to attempt work which makes some demand on more than purely manual activities, and as soon as the tool processes are mastered he should be able to a great extent to work alone.

Sharp tools are absolutely essential if really good work is to be done, and much more attention should be paid to this point than is very often given. The boys should learn by degrees to do much of the tool sharpening required. They should begin to learn the art by experimenting on a few chisels kept specially for the purpose. Before the end of the course they will be able to sharpen knives, chisels and planes, and the better boys may even be able to set saws.

15. **Finish.**—Few articles can be regarded as satisfactorily finished if left in the white wood. In the wear and tear of daily use they will soon become soiled and unsightly. The article should be painted, or enamelled, or stained and polished, according to the purpose for which it is intended. Similarly, metal articles may sometimes be plated. Apart from its utilitarian value, "good finish" is likely to increase

the esteem in which the pupil will hold his work, and a good deal of useful knowledge of the manipulation and properties of "finishes" will be gained incidentally.

16. Repairs.—Much of the handwork of the home consists in executing repairs, and wherever possible, the school course should afford boys practice in such jobs as the repair of furniture and utensils, the adjustment of locks and latches, the fitting of washers to taps, the adjustment of a ball valve, or the cutting of a key. Further practice may in some districts be given in repairing garden and farm implements.

17. Hobbies.—Since many boys may find a hobby for later life in some form of handicraft, they should be encouraged to make some of their own tools and occasionally to take home their work in order to do some of it in their spare time. Sometimes part of a job involves repetition work which can be done with few tools and needs no equipment for holding it beyond that afforded by the ordinary kitchen table. A decorative design may often be finished in this way once the boy has learned to do part of it to the satisfaction of his teacher.

18. The Work of the Second and Third Year Boys.—In the past, the training of the second and third year boys was usually the least satisfactory part of the senior course: boys who had advanced some way in the subject were condemned to spend their time in the routine making of conventional models, although they were capable of very much more interesting and profitable work. Systematic guidance is always necessary, but even now it is not fully realised how far the intelligent boy of 12 to 14 years can go when he is stimulated by interest wisely directed, and has access to good technical books. After he has passed the stage devoted to the acquisition of the necessary amount of skill in the manipulation of tools, he should be allowed considerable freedom to suggest objects for construction and to plan the lines on which they are to be made. It would be a mistake, however, for teachers to think that

there is no further need for a systematically planned course. Such a course, while designed to secure steady progress on the part of the boys should be elastic in character: it should afford increasing scope for originality and initiative and should appeal to a variety of interests.

19. Examples of More Advanced Work.—Some examples of various kinds of work which teachers have found their more advanced pupils able to achieve are given below. In some cases the work can obviously be done in a Centre, in others the work (e.g., some of the scientific apparatus and art-crafts) can be done in an ordinary classroom.

(a) *School.*

Apparatus for Classroom.—Brackets, shelves, bookslides, window-boxes, small beds for the babies' class, weighing apparatus, measures, equipment for printing and book-binding.

Apparatus for Nature Study and Science.—Larvæ cases, collection boxes; balances, spring balances, pulleys, moments frames; test-tube racks, funnel stands; models of pumps and turbines; plane-tables and theodolites; simple apparatus used in connexion with the study of heat, light and sound; electrical apparatus for laboratory use, and fittings for batteries, bells, lights, motors, dynamos; simple working models of telephones and telegraph instruments.

Apparatus for School Garden.—Cold frames, sheds, wheelbarrows, hoes, rakes, cultivators, peck and gallon measures, baskets, hose-reels, garden rollers, rustic seats, pergolas and trellis work.

(b) *Home.*

The construction of a great variety of simple domestic articles in wood and metal, and the making of simple furniture. (This will probably form the bulk of the work in many Handicraft Rooms.) Chair-caning, upholstery and chair-covering.

Handyman's Work.—Fitting tap washers, adjusting ball float valves, simple soldering, fitting sash lines, repairing electric bells, adjusting locks, plugging walls ; cycle repairs ; “trueing” wheels, adjusting hubs, fitting cups, cones and balls, trueing forks and steering tubes, fixing handle grips, adjusting brakes and repairing tyres.

(c) *Games and Hobbies.*

Apparatus for football, basket-ball, cricket and parlour games ; pens and hutches for keeping livestock ; cameras and lanterns ; apparatus for photography.

(d) *Simple Art Crafts.*

Bookbinding, lettering and printing ; leather work, including the making of bags, cases, purses, bellows, and the tooling of simple patterns ; pottery ; art metal-work, repoussé hammered metal, etc. ; art jewellery in simple forms ; simple enamel work ; cutting and printing from simple “lino-blocks,” or wood blocks.

20. Handwork in Central Schools.—In Central and other schools which retain boys beyond the age of 14, one or two additional years of instruction will often be possible. The work in these years should give increased opportunities for the exercise of skill and ingenuity and for undertaking more ambitious projects. Many schools will at this stage provide a more definite course in a new medium ; for instance, boys who have had two years of woodwork may now begin a systematic course of metalwork, either of the engineering or the art-craft type. In some schools the course will consist largely of cabinet-making. In others it may be related to the ruling industry of the locality. In schools where the teacher of handicraft has had a sound training in science, or where close co-operation exists between the teachers of handicraft and science, the course may consist of the construction of scientific apparatus such as electrical apparatus of all kinds, optical instruments, or models requiring knowledge of the principles of mechanics. The value of this combined work is very great when it is

systematically carried out. It adds reality to the work in science, it offers first rate practice in technique, and it encourages independence and originality. Some schools may prefer to adopt a course consisting mainly of the making of simple tools with a view to giving boys a useful outfit for their work at home. Such a course would include the making of the following :—Rule, bradawl, try-square (the blade may be made from an old bed lath), T-square and drawing-board, screw-driver, marking-gauge, mitre-block, mallet, bow-saw, bevel, square chisel, tool-box with hinges and lock or other fastening ; tools for metalwork such as a set of chipping chisels, nail set, rivet set, gauge plate, calipers (in, out, and sliding), tap holder, hammer, soldering iron and soldering lamp, oil-can (from metal-polish tin), hack-saw, frame and scribing block.

21. Schools in Rural Districts.—In rural districts the possibilities are more obvious, but they are rarely developed as far as they might be. Poultry-keeping and gardening are becoming more scientific in character, and the school classes in these subjects should be equipped with a variety of measuring instruments and simple scientific apparatus, much of which can be made by the boys themselves.

The following suggestions may indicate possible lines of work, but it is not anticipated that any school will be able to deal with all these sections. A selection will, no doubt, be made according to the facilities and opportunities that the school may possess :—

- (i) Wood and metal labels, seed boxes, seed drills, seed protectors, trays for storage of fruit, ladders, wheelbarrows.
- (ii) Fences of various types, stiles, rustic arches and trellis work.
- (iii) Cold frames with glazed lights and bases of wood, brickwork or sods ; small greenhouses, tool-sheds.
- (iv) Pens for pigs or poultry, trap-nests, egg-boxes, bee-hives, bee smokers and feeders, feeding and drinking troughs, hay racks, gallon and peck measures, sprayers, primers.

- (v) Apparatus for weather observations and nature study: wind vanes, hygrometers, anemometers, sunshine recorders, cases for thermometers and barometers, rain gauges; plant presses; passe-partout frames; vivaria and aquaria.
- (vi) Incubators and "foster mothers"; milk-testing apparatus, small dairying utensils; simple turnip-cutters, corn mills, and vermin traps.
- (vii) The repairing of garden and farm implements, fences, gates, sheds and barns, and the making of accessories such as staples, hooks, hinges, latches, hoes, rakes, tree pruners, and hand pruners, storage bins (from oil-drums), garden rollers (from oil-drums, filled with cement).
- (viii) Simple operations involved in obtaining and utilising a water supply for the garden or farm, either rain water, spring water, or water from the main: pumps of various kinds (hand and wind driven); the hydraulic ram; fittings for hose pipes, sprinkler fountains.
- (ix) Several small types of hand-ploughs, drills, and wheel cultivators which are simple to construct out of wood and of strip iron in small sizes rarely exceeding $\frac{3}{16}$ in. in thickness by $\frac{3}{4}$ in. in width. This iron can be worked cold and with quite a small equipment.
- (x) Garden apparatus for games and recreation, e.g., hammocks, garden seats, tents, marker for tennis lawn.

22. Equipment of Practical Rooms and Centres.—For the handwork of the older boys a specially equipped room is needed. The nature of the equipment should depend on the type of work attempted, but for practically every type at least some heavy benches are indispensable.

The ideal provision is a Workroom set apart for the sole use of one particular school and specially equipped according to its needs, but for some time to come it will be necessary to have Centres in common use by several schools, and in

many cases both Centres and Workrooms alike will have to be rooms which are not exclusively used for handwork. This will necessitate makeshift arrangements.

It will be convenient to discuss equipment under the two headings of "Workrooms" and "Centres."

(a) *Workrooms.*

Some of the larger schools already possess a special room which is used for practical work in science and drawing and furnished with strong tables and chairs. These rooms may sometimes be adapted for handwork if they are fitted with wall benches on which the heavier operations may be done. To these benches should be fixed such tools as vices, a tool grinder, drilling machine, brazing hearth and blowpipe. In some cases a foot-driven lathe would be provided and there should be a sink and adequate cupboard space.

Sometimes a school possessed a large room not required for ordinary teaching purposes which could be fitted up as a practical workroom, while in a number of cases the managers have provided, or may be able to provide, a wooden building, such as an army hut, in the playground. Sometimes the boys themselves have helped to erect such a building.

Almost any type of room, from a coach-house to a dismantled cottage, will serve, with slight adaptation, for a full course of handwork, provided that adequate floor-space and lighting can be secured. Much of the fitting up may be done by the scholars as the work proceeds, and any inconvenience experienced may merely provide useful training in resource and adaptability.

In all rooms of this type it is neither necessary nor desirable to provide each boy with a separate bench and a full set of tools. The use of a wider selection of material and the encouragement of individual work should imply a correspondingly smaller simultaneous demand during class hours for any particular type of tool, and it is quite possible that some boys in a class may be at work on wood, others on leather, others again on metal or glass at the same time.

In cases where the room is sometimes required for other purposes (e.g., a village hall or a classroom used at other times for ordinary work) difficulties arise in the storage of benches and tools. The equipment must then be of the simplest character. Special benches with a tool cupboard below have been devised to meet the difficulty, and in some cases even ordinary vices have been dispensed with, the wood being held by an improvised wedge-vice.

Although, ideally, the course should determine the equipment, it may be necessary under present financial conditions for the equipment to determine the course to a large extent. An ingenious teacher may none the less succeed in evolving a satisfactory course and may secure work of the highest quality with the most makeshift appliances and minimum of tools.

(b) *Centres.*

The typical Woodwork Centre is furnished with carpentry benches, each bench generally having two vices and two complete sets of woodworking tools for the use of two boys. The Metalwork Centre is furnished with metalwork benches, each bench generally having a vice and a complete set of tools for each pupil. In addition, bench shears, forge, a drilling machine, and often a lathe are provided.

It is usual now to make some provision for simple metalwork in Woodwork Centres and, similarly, to provide Metalwork Centres with some equipment for working in wood. It is also recognised that it is no longer necessary to provide a full equipment of hand tools for every boy, but that the supply of a greater variety of tools for general use greatly extends the usefulness of the Centre. In some towns with separate Centres for woodwork and metalwork, some small interchange of tools would also increase the range of work possible without involving any fresh outlay.

23. Reference Library.—A reference library is an essential part of the equipment. It should contain books on such matters as craft practice, tool methods, materials, processes (e.g., lacquering and french polishing), manuals giving the

theory in simple language of such machines as the steam engine, of electrical models, and of wireless sets, and books of designs to which the boys may refer for ideas. Many of the periodicals devoted to boys' hobbies and to home-crafts will also be found valuable for reference. Portfolios may be kept to preserve the drawings of details of good craftsmanship made by boys after visits to museums, churches, or other buildings, together with photographs of similar objects.

(ii) GIRLS.

24. **Handwork for Older Girls.**—In the past housecraft and needlework were regarded as the only forms of handwork for girls. In recent years, however, many teachers have sought to increase the value of the practical work done by older girls by widening its scope. Much of this work is still experimental, but enough has been done to show that girls benefit by the study of interesting forms of applied art. Thus needlework is no longer confined to acquiring skill in the construction and repair of garments. A widening field of interest is opening out, not only in the various forms of decorative needlework which can be developed from the study of colour, design and texture of various fabrics, but also in the simple practice of the occupations of spinning, weaving and dyeing.

The development of drawing in some schools in the direction of design, which has taken place recently, has led to the decoration of various articles of household use, to the manipulation of all kinds of materials and to various forms of "art-crafts."* Work of this kind presents ample opportunities to girls of developing their practical skill and exercising their powers of invention.

Where an artistic craft is followed in the handwork of the older girls, certain conditions should be observed. The craft should involve something more than mere repetition of mechanical process : it should allow scope for originality

* Reference may be made to Chapter XI (Needlework) and Chapter VIII (Drawing).

both in design and execution. A craft should only be undertaken where there is a teacher suitably qualified to deal adequately with it. The careful study of one or two crafts is probably of more value than a superficial acquaintance with many. Long continuous periods of the time-table are preferable to shorter periods at more frequent intervals. On the other hand, if longer periods are arranged, it is important to ensure that they are not occupied in purely mechanical processes such as occur in raffia-work, rug-making, hand-weaving, embroidery, and lace-making, which may be pursued at home when once the principles have been learnt.

CHAPTER XI.

NEEDLEWORK.

SUMMARY OF CONTENTS.

Section.

1. **The Value of Needlework.**
2. **The Teaching of Younger Children.**—Instruction in needlework may be postponed if suitable preliminary training is given in handwork. The teaching should be based on the principle that the children themselves plan, make patterns, cut out and fix their work. Too fine a standard of stitchery not to be expected from young children. Good methods of workmanship essential but without formal drill or exercises. The value of decorative stitchery in the earlier stages. Children should see finished examples of the articles which they are about to make. Ground to be covered by the age of 11.
3. **The Teaching of Older Girls.**—A carefully graded scheme essential to secure continuity with the previous work and systematic advance. Schemes generally should be based on the practical requirements of the girls, but "practical" does not mean merely "utilitarian." Garments made should be based on current styles, but useful processes should not be neglected because rarely used at the present time.
4. **Cutting-out and Pattern-making.**—What is meant by "cutting-out." It should be constructive, and must be done by the girls themselves. The use of bought patterns should be taught. Adaptation of patterns.

Section.

5. **Knitting.**—A favourite occupation. Specimen work unnecessary. Simple articles should be made from the first and girls should be trained to work from printed directions.
 6. **Mending and Renovation.**—Manipulative skill must precede systematic teaching of mending. Difficulties in teaching practical mending, and how to overcome them. The renovation of garments a valuable training.
 7. **Decorative Work.**—Should be encouraged as a means of guiding taste. Decoration a matter of construction. The decoration of white work. The teacher's guidance.
 8. **Methods of Teaching.**—The value of the class-lesson. Demonstration. The choice of material.
 9. **Note-Books.**—Every girl should keep a record of her own work.
 10. **Testing.**
 11. **Schemes and Organisation.**—Responsibility for seeing that the scheme is carried out in Girls' and Mixed Schools. Classification for needlework. The backward girl.
 12. **Amount and Distribution of Time.**
 13. **Supply of Materials.**—The effect of the requirements of Education Authorities. The requirement that the sale of articles made should cover a fair proportion of the cost of material is sound. The quality and range of materials supplied. The necessity of frequent revision of the Authority's list of materials for supply.
 14. **Equipment.**—The value of a specially equipped room. The necessary equipment. Storage accommodation. Sewing bags. Facilities for washing hands.
 15. **Use of Sewing Machines.**
 16. **Books for Reference.** etc.
 17. **Conclusion.**—Visits to museums and exhibitions. Conferences of teachers.
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1. **The Value of Needlework.**—Since needlework is regarded as an indispensable part of the general education of girls, and is included in the curriculum of all junior and senior departments of Elementary Schools attended by girls, it is very important that its possibilities should be

fully realised. Needlework also provides scope for the expression of individuality and is a means by which constructive power and artistic feeling may have an outlet. Moreover, if girls have learnt during their school life to find genuine pleasure in needlecraft, they will have acquired a valuable source of enjoyment for leisure time, as well as a useful art of definite value in their homes.

The following suggestions deal with some of the practical problems of teaching the subject in the light of these possibilities. They involve no fundamental departure from the principles contained in former issues of the "Suggestions"; their main object is to call attention to certain points which the experience of the last few years indicates as being of special interest or importance.

2. The Teaching of Younger Children.—It is now generally recognised that the teaching of needlework may be postponed until the girls are between seven and eight years of age, or even eight and nine, provided that preparatory training is given by suitable handwork in the infant stage. In this connexion, it may be useful to refer to the principles laid down in Chapter X: "Handwork," p. 331, Section 5.

When the teaching of needlework proper begins, it is essential that the principles on which handwork is taken with younger children should be followed up, and that the children should themselves do the planning, measuring, and making of a paper pattern and afterwards the cutting-out and fixing of what they make, as well as the actual sewing of it. The selection of articles to be made in all stages of the needlework course should be determined mainly by their suitability from this point of view. Within limits freedom to make mistakes is essential for progress. Planning and cutting-out require thought and initiative, and develop a sense of responsibility; confidence and power are gained by children only when they are allowed to overcome their own difficulties. Gradually, too, they acquire a knowledge of shape and proportion which will render the cutting-out of more complicated garments at a later stage comparatively easy.

Too fine sewing ought not to be expected of the younger children. At first, stitches will be fairly large and probably irregular, but with practice and increasing control, more regular sewing may be gradually expected. The evenness aimed at should be the result of practice in judging distances and of increasing control, not a mechanical regularity dependent upon exact measurement or external aids such as the use of dotted lines or the counting of threads. The needles used should be large-eyed and not too long, threads thick and smooth and of clear bright colours; materials should be fairly soft, but firm in texture. To prevent any strain on the eyesight, the use of white canvas and of striped and check materials should be avoided.

The importance of training children early in good methods of workmanship from the outset cannot be too strongly emphasised. From the time, for instance, that the use of the thimble begins teachers should see that the girls do not acquire the bad habit of pushing the needle into the material with the thumb and forefinger and then putting the thimble-finger on to the head of the needle to give a further push. Rhythm of movement will never be obtained thus. Definite instruction is needed in the handling of tools and materials, but this should be given without resorting to anything in the nature of the old mechanical drills or formal exercises. In this connexion, what is popularly known as "decorative stitchery" (i.e. large coloured sewing which combines construction and ornament), is particularly suitable for the children in the early stages, provided that the teacher understands clearly the underlying principles. For instance, the main point in taking this type of work with younger children is lost if fine white cotton is used to make the article and the coloured decoration applied afterwards, or if the stitches are allowed to become so large that they serve no purpose either constructive or decorative. Its value as a method is due primarily to the fact that the stitches used are simple and at the same time can be employed in a great variety of ways, and so give the child the necessary practice in the manipulation of her tools without loss of interest in the process.

With the same object in view, viz., the training in good methods of workmanship, it is generally desirable to show children finished examples of the articles which they are going to make before they begin to make them. The study of good models helps to give a clear conception of aim, and in matters of colour and choice of treatment, it is almost the only way in which good standards of taste can be formed.

By the age of eleven, girls may normally be expected to be familiar with the simpler processes in sewing and knitting and to have attained some skill in the use of tools and materials.

3. The Teaching of Older Girls.—When girls pass on between the ages of eleven and twelve to senior schools or classes, definite steps should be taken to ensure continuity of progress. The work expected from older girls, whether taught in Central Schools or not, should be of a definitely more advanced character than that of the junior classes. The planning out of a carefully graded scheme is of the utmost importance throughout the later years of school life to ensure systematic progress.

In recent years attention has been rightly focussed upon the practical requirements of the girls themselves, and many garments are now made. The principle of making school work "practical," however, while it is at the root of many modern reforms in teaching, is a principle that carries with it some danger. "Practical" must not be interpreted to mean merely "utilitarian." In the desire to see children able quickly to turn out garments which they can wear, the teacher must not forget that the first duty of the school is to develop power and to teach the elements of good craftsmanship. To produce garments quickly is not the only reason why needlework is taught in schools, and though the excessively fine stitching of former days has rightly given place to something that is simpler and less laborious, the virtues of thoroughness, accuracy and care will always have their value.

Teachers are taking pains that the patterns and methods used in school shall be reasonably in touch with current

styles, and the increase in the number of garments made is no doubt largely due to the marked simplicity of present-day fashions.

The question, however, arises whether certain processes which formerly occupied much time in school, should suffer serious neglect because they happen to be comparatively rarely used at the present time. It is obviously undesirable that children should be compelled to use a particular process in a garment merely in order to learn that process, if the garment itself would have been more serviceable or convenient when made in a simpler way. At the same time, so long as any process (such as the setting of gathers into a band, or the making of buttonholes) is specially suitable for certain purposes, it is inadvisable that girls should leave school ignorant of it. It should be remembered further, that, while reasonable regard must be paid to local customs, the school can often give valuable help to parents, through the introduction of newer patterns and methods of workmanship.

4. Cutting-out and Pattern-making.—Improvement has been slower on this side of needlework than on any other. It can still only be said of comparatively few schools that the girls throughout the school are required to plan, cut out and fix, as well as sew, the garments and articles they make. Owing partly to misunderstanding of what is meant by cutting-out, and partly to the very real difficulty of teaching it to large classes, too often cutting-out in schools amounts to little more than cutting round a pattern which has already been placed in position on the material by the teacher. It is the proper planning and placing of the pattern rather than the merely mechanical exercise of cutting it out that is of practical value to the girl.

Teachers who for one reason or another themselves undertake the planning and cutting-out of nearly all the articles and garments made, are really depriving the girls of a very valuable training. They forget that the making of the simplest articles gives scope for intelligent planning and construction, and that this work provides a direct training in adapting means to ends that few other subjects

offer to the same extent. For example, if a child is to make a sheet for a doll's bed, she should herself measure the bed and make allowance for hems, turnings, and tucking-in, and make her paper pattern before she cuts it out in material. These simple things are sometimes done by the teacher because they are so easy, but it is only by beginning with the simplest things and acting upon the principle consistently through the school that girls will gain the necessary confidence for planning and cutting out real garments later on, and so be able to make full use of their needlework at home.

There is no doubt that when they leave school the large majority of girls will use full-sized patterns which can be bought for a few pence at any stationers' shop, and the ease with which good patterns can be so obtained makes it important to teach the girls while still at school how to use them. Some teachers believe that the foundation necessary for the intelligent use of these patterns is best obtained by some instruction in pattern-making by means of paper folding, simple drafting or modelling. Whatever method of teaching pattern-making is adopted, there should be definite instruction on the parts of the pattern and their relation to the human figure, which is based on careful observation, fitting, and actual measurements by the girls themselves. Time should not be spent in making or adapting patterns of garments which are out of date, or which are not intended to be cut out and made by anyone in the class. When bought patterns are used, the girls should be taught not only how to adapt them for the persons for whom they are intended, but also to understand the directions given with each pattern. In choosing patterns it should be remembered that the problem of disposing of the garments made in school is very much easier of solution if care is taken to ensure that the patterns used are of modern type, and the garments of a kind that the children themselves like to wear.

5. **Knitting.**—The special demand for knitted articles during the war not only stimulated interest in knitting in the schools, but proved that practice in knitting

“specimens,” apart from the making of things, was unnecessary. The output of knitted things by the schools during the war years was remarkable in extent and variety, and was the outcome of great enthusiasm and industry on the part of both teachers and girls. As a result of the fashion for knitted wear knitting has continued to be a favourite occupation. It is generally found that parents readily supply wool for articles that will be quickly made and are of practical use.

In this branch of needlework—specimen-work and practice-pieces have almost disappeared and there is no reason why they should not do so entirely. Knitting can be so graded that simple and interesting articles may be made from the earliest stages, and there is no justification for the old practice of allowing little children to waste time in knitting strips which are afterwards unpicked. Such a practice puts no value on a child's efforts and, apart from discouraging her at the time, may have a far-reaching moral effect leading to careless work and a habit of indifference. A girl can neither take pride in, nor put industry into, work which she knows is going to be destroyed as soon as it is finished.

After the initial difficulties have been overcome in the junior classes, the making of socks and stockings should be begun, and for these and other knitted articles girls should be trained to work from printed directions and to work independently. It is inadvisable to restrict knitting to one term, or to allow it to take up a disproportionate amount of the whole time set apart for needlework.

6. Mending and Renovation.—Though quite young children may well be encouraged to make such simple repairs to their own garments as sewing on buttons or tapes when the need arises, systematic mending can only be taught satisfactorily when the girls have acquired a certain amount of manipulative skill and have had considerable practice in handling material. It is frankly recognised that there are special difficulties in teaching in school mending of actual garments and articles in various stages of disrepair. The direction of a large class, in which every girl has a different

piece of mending presenting many different problems, some of which demand considerable ingenuity for their solution, is nearly an impossible undertaking for most teachers. Probably the best way of meeting this difficulty is to give instruction on certain types of mending (e.g., on darning) to the class as a whole, to be followed by practical work taken by groups of girls in turn. By this means it has been found quite possible to supervise effectively the mending work of ten or twelve girls, and at the same time to keep a general oversight over the rest of the class who are at work on garments or knitting.

Another difficulty frequently experienced is that of getting the girls to bring from home suitable things to mend. Only tact and patience can overcome this, but in many places experience has proved that if the mending is reasonably well done and the methods taught are suitable to home conditions, parents can usually be won over to co-operate with the school. It has been found easier to get a few girls to bring suitable pieces of mending for a particular lesson than to get the whole class to do so, and this is another argument for the procedure suggested above.

Closely allied to mending is the cutting down or renovation of partly worn or old-fashioned garments. During the war many schools, faced with the shortage of new material and the urgent need for practising economy, did excellent work in the making of new garments out of old. Some schools have continued to develop this side of the work, and there is no doubt that these are giving their girls a training of a particularly valuable kind. The preparation of the old material by washing, pressing and re-dyeing, if needed, affords practical lessons in thrift and hygiene, and the transformation of a soiled unattractive cast-off article into something fresh and serviceable makes no small demand upon the imagination and resourcefulness of the maker.

7. Decorative Work.—Both the scope and the limitations of decorative work in schools need serious consideration. The desire for pretty things is universal among children

and girls, and it should be encouraged as a means of guiding taste and judgment towards sound appreciation of what is really to be admired. The habit of regarding what is beautiful as something distinct from what is useful has been responsible for much purposeless "fancy work" and "ornamentation" (wrongly so called) in clothes and household furniture. There have been signs recently of a welcome reaction from this view, and the schools may do much to assist it.

The idea that a garment or any other article should be made first and beautified afterwards is giving place to a truer conception of beauty as a matter of construction, workmanship and fitness to purpose, rather than of mere ornamentation. This is one of the ideas underlying the recent changes in the work of the younger children to which allusion is made above, namely, that the stitches which hold the material together should at the same time decorate it, or, in other words, make it more attractive and interesting.

It must not be concluded, however, that large coloured stitching is the only form of decoration to be taught, nor that it is necessarily suited to all purposes. Not only is good "plain-sewing" far more pleasing to the eye and more suitable for many things, but there are other and traditional forms of simple white embroidery which it is a great pity to neglect. The large coloured stitchery of the junior classes might be followed up more systematically in the senior classes by further training in design and by the teaching of simple embroidery stitches suitable both for coloured or white work.

In all this work the importance of cultivating the æsthetic side of a girl's nature and of training her taste should be borne in mind. Since the opportunity of seeing beautiful things is the first essential for learning to appreciate them, a great deal can be done if teachers will be at pains to study for themselves and to put before the children a few examples in needlework of really good workmanship, design and colouring.

8. Methods of Teaching.—The value and place of class teaching in needlework are matters which again need emphasis. There is a time for the class lesson and demonstration as well as for group and individual teaching.

Time and energy are often wasted in teaching individual girls in turn a process or stitch which could be quite as effectively dealt with by a lesson to a class or to a section composed of girls who are at the same stage. It is obvious that in large classes any attempt to teach new processes to each individual girl, or to deal with every difficulty individually, may entail periods of idleness on the part of some girls and unnecessary repetition on the part of the teachers. Needlework is a practical subject and so it may not be necessary to give a class lesson every week, but there are some topics (e.g., pattern-making) which can be best dealt with in class lessons. In other cases it may be more convenient to give the lesson to a section of the class.

Opportunities should be found for talks on the choice of materials, their quality, width, and suitability for various purposes. Where appropriate, reference should be made to what has been learnt in lessons in other subjects; for example, lessons on the source and manufacture of materials, laundering, shrinkage, durability of fabrics, and preservation of colour.

9. Note-Books.—Note-books when intelligently used can be as helpful in the teaching of needlework as in any other subject. Every girl should keep a systematic record of her own work which should give the date of the beginning and finishing of each article made, the cost of the materials and the quantity used. This record will be useful to the teachers in showing how the syllabus works out in practice and in checking unnecessary repetition of work already done. If the books also contain details and sketches of difficult processes in sewing or knitting, designs in colour for decoration of various kinds, actual samples and names of different kinds of materials with current prices, and notes of their suitability for different purposes, they should be of value to the girls not only in school but in after-life.

10. Testing.—It is very desirable that teachers should from time to time find out whether the subject is exercising the girls' intelligence as well as their fingers. With this end in view simple tests should be set periodically. This may be done by questions requiring, sometimes an answer in writing, sometimes a piece of work, such as the planning of a pattern on material or the making of a buttonhole.

11. Schemes and Organisation.—If needlework is to be taught on the lines indicated above, there will need to be a coherent, graded scheme drawn up by one person, usually the head teacher, or, in a Mixed School, the chief woman assistant, in consultation with other members of the staff. All those who take part in the teaching of needlework should know the whole scheme, but one teacher needs to be responsible for seeing that it is carried out from class to class. In a Girls' School this will naturally be the head teacher, in a Mixed School the chief woman assistant.

In schools where classes have to be combined for needlework, every effort should be made to avoid unduly large classes or classes where the range of attainment is very wide.

There are obvious advantages in reclassifying girls for their needlework lessons according to their practical ability in schools where circumstances permit.

12. Amount and Distribution of Time given.—The time given to needlework may vary for one reason or another, and, in general, younger girls need less time and shorter lessons than older girls. In Mixed Schools the special difficulty of arranging the needlework lessons is recognised, but it should be borne in mind that for older girls fairly long lessons are desirable; thus, two lessons of $1\frac{1}{2}$ hours each are of greater value than three of one hour each. In order to allow for this it is sometimes found convenient to separate the boys and girls for a whole session and take the girls by themselves in another subject (such as hygiene) for part of it.

13. **Supply of Materials.**---The regulations of Local Education Authorities governing the supply of materials and the disposal of articles made sometimes have a serious effect in limiting the scope and value of the work done. It is usually expected that the sale of the articles made shall cover either the whole or a large proportion of the cost of the materials used, and consequently the fear of financial loss sometimes prevents teachers from giving the girls as much work as they could do, or tends to the repetition of certain garments merely because they have a ready sale.

The requirement of making the sales cover a fair proportion of the cost of materials is a sound one. Girls are expected to receive continuous instruction in needlework through the making of articles and garments, and it would be an unwarrantable charge on public funds and a bad economic training for the girls themselves if the necessary material were supplied without any return being made. Teachers who in working out their schemes carefully consider local conditions, encourage the use of modern patterns, and insist on good workmanship, generally find little difficulty in selling most of the garments made ; but it would be unreasonable to expect them to return the whole cost. It should be clearly recognised that a margin must be allowed for experiment, especially in the work of the younger children.

The quality and variety of materials used in school have shown marked improvement in recent years, and the fact that many Authorities allow teachers to obtain their materials in different ways is, no doubt, partly responsible for this. The most usual method of obtaining materials is to requisition from a list supplied by the Authority, but in some cases samples are also sent to the schools, or a central depot is provided where materials can be seen by the teachers. In other cases teachers buy what they need locally. Whatever method is adopted, it is very important that the lists and samples should be subject to frequent revision by the Authority in consultation with the teachers. It must be remembered that within the area of a large

Authority local conditions vary considerably, and it is therefore desirable that teachers should have as much latitude as possible in the selection of materials.

14. Equipment.—It is now recognised that needlework requires more space than is afforded by an ordinary classroom. In new buildings the tendency is to provide a Practical Room which is furnished with tables and chairs in place of desks, and can be used for needlework, other practical subjects and the mid-day meal. In a few existing schools, also, it has been found possible to set aside one room as a Practical Room.

In the majority of schools, however, needlework will have to be taught in the ordinary classroom. The ordinary equipment should be supplemented by :—

- (1) Folding tables for cutting out.
- (2) Covers for desks.
- (3) Separate and better storage accommodation.
- (4) Adequate washing facilities.
- (5) Sewing machines.
- (6) Books of reference, fashion and pattern books.
- (7) Facilities for pressing work.

Sets of drawers or loose trays inside a closed cupboard would be more convenient than the hampers usually provided for purposes of storage ; any accommodation for needlework materials should be separate from that provided for other school apparatus. Each girl should equip herself as early as possible in her school career with a sewing bag in which to keep her work, a thimble, tape measure, scissors and needlebook or pincushion. This practice will not only help her to acquire careful habits but will also prevent unnecessary losses.

Adequate facilities for washing can scarcely be regarded as additional equipment, but cleanliness is especially important for needlework, and hot water should be provided, if possible, as well as a towel, for the use of each room. Girls should learn early that hands should always be washed before doing, whether at school or elsewhere, certain kinds of work, for example, nursing, cooking and sewing.

15. Use of Sewing Machines.—It is very desirable that in all schools the older girls should be taught how to use a sewing machine. This does not mean that machine work should usurp the place of hand work, but that it should supplement it where needed. Sewing by hand will always be of the first importance as a skilled craft which gives beautiful results that can be achieved in no other way. But the machine is a stronger and better, as well as a quicker, tool than the needle for certain purposes and the older girls should learn what these purposes are before leaving school. In dealing with such materials as serge or flannelette, machining is almost necessary for satisfactory results. Again, when a good standard of hand-sewing has been once attained, the machine may be freely used for most long seams. The girls should not be allowed to assume, however, that speed is the only object in view in using a machine, or that it is equally suited for all garments and materials alike. The desire to complete a garment quickly must not lead to hasty or inaccurate work, and special emphasis should be laid upon neatness and care in finishing off.

16. Books for Reference, etc.—Teachers, and sometimes the pupils as well, would profit by a more generous provision of literature on needlecraft. The supply of books may be usefully supplemented by a circulating library of books and magazines dealing not only with the practice and teaching of needlework, but also with its history in our own and other countries.

17. Conclusion.—In conclusion, teachers of needlework should neglect no opportunity that offers of keeping alive their interest and developing their skill in needlework and the allied crafts. By so doing, they will be better able to stimulate effort and enterprise on the part of the children, and will realise unforeseen possibilities of development in their own work. Visits to Museums and Handicraft Exhibitions, informal conferences of teachers within their own or other districts, as well as the study of good books and models, will all help to this end.

CHAPTER XII.

HOUSECRAFT.

SUMMARY OF CONTENTS.

I. GENERAL CONSIDERATIONS.

Section.

1. **Housecraft an Essential Part of a Girl's Education.**—It should be begun at school. It should lead her to appreciate aright a woman's work in the home.
2. **Housecraft in Relation to Other School Subjects.**—It is unfortunate that it has often been considered an isolated subject. It can only achieve the best results when there is close co-ordination between it and the work of the school. How effective co-ordination can be assisted.
3. **The Age when Instruction should begin.**—Instruction best given in the last two years of school life.
4. **The Content of the Course in Housecraft.**—Housewifery, Laundrywork, Cookery, and Home Organisation. A high standard of craftsmanship to be aimed at. Total time required.
5. **The Organisation of the Time for Housecraft.**—Possible arrangements. The best arrangements for different branches. The length of the lesson.
6. **The School and the Organisation of Housecraft.**—The disturbance of the general organisation of the school should be reduced to a minimum. A mutual "give and take" necessary. The class basis for selection. Difficulties. The case of older backward girls. Promotions in the course of the school year.

Section.

7. **Syllabuses.**—To be drawn up in consultation with the school. Governing considerations.

II. THE COURSE IN HOUSECRAFT.

8. **Housewifery.**
9. **Laundrywork.**—Washing of fabrics. Incidental teaching of hygiene. Help that can be given from the science lessons.
10. **Cookery.**—Main aim. Processes of cooking. Planning of meals. Dietetic values of foodstuffs. Illustrations. Economy of materials. Economy of time and labour. The practical work. No time for the higher branches.
11. **Home Organisation.**—The routine management of a home. Value of organisation. The æsthetic side of the home. Household accounts. Care of infants. Filing of papers.
12. **Housecraft in Rural Areas.**—Reasons for occasional non-success. The use of country produce. The importance of paying regard to local conditions.
13. **Central Schools.**—More advanced work possible. The school with commercial bias. The school with industrial bias.
14. **Note-Making.**—Its importance. Should not be confined to a collection of recipes.

III. PREMISES AND EQUIPMENT.

15. **Premises.**—The best plan for large schools to include the housecraft rooms in the building or to allocate special premises to the school. Where schools are small, the Centre system still most convenient.
16. **Equipment.**—Simplicity the key-note. Some suggestions.
17. **Provision of Materials for Cookery.**—Cost defrayed as a rule by sales. Not always possible. Reasonable quantities of materials are necessary. Ingredients brought from home. Girls marketing. Purchases from the school garden.
18. **Disposal of the Cooked Food.**—The ideal plan. The provision of meals through the Centre in rural and urban areas.
19. **Reference Library.**—An essential part of the equipment. A circulating scheme.

I. GENERAL CONSIDERATIONS.

1. **Housecraft an Essential Part of a Girl's Education.**—Practical instruction in housecraft is an essential part of every girl's education, and should be begun while she is

still at school. It helps to bridge the gap between a girl's school life and her home life. It leads her through the simpler processes of housewifery, laundrywork and cookery to a knowledge of the important principles which determine what is a healthy diet, and finally to consider a home organisation in which all the separate branches of housecraft are closely interwoven as they are in fact in a woman's home life. The girl's work in housecraft should train her to set a high value on all woman's work in the home, and should develop in her an interest which will ultimately result in proficiency in the art of making a good home.

2. Housecraft in Relation to Other School Subjects.—In the past housecraft has too often been looked upon as an isolated subject because it is usually taught in Centres apart from the ordinary school by specially qualified teachers who are not attached to the staff of the school. This is unfortunate. No subject of a girl's education should be considered apart from the rest, and instruction in housecraft will only achieve the best results if the co-ordination between the general work of the school and of the Housecraft Centre is of the closest possible kind. That there are difficulties in securing co-ordination is true, and both school and centre have their special difficulties, but with good will it ought not to be impossible to surmount them, for in many ways housecraft carries forward the instruction of the school and gives it a practical application. Thus, the manual skill and the training in the right use of tools and apparatus acquired through handwork and needlework are the foundation for the more complicated manipulations of laundrywork and cookery, and what has been learnt in the science lessons about air, water, ventilation and heat gains a clearer meaning when it is applied to the problems of housecraft.

Effective co-ordination can be secured in those cases where the Centre forms part of the premises of a school by appointing the housecraft teacher as a member of the staff of the school. The growing practice for teachers of senior pupils to specialise in particular subjects will make it easy

for the specialist teacher of housecraft to take her proper place as a member of the staff. This organisation of staff, however, is not yet generally possible, and special steps should be taken to secure unity of purpose between the school and centre. The head teacher of the school should make herself thoroughly acquainted with the work of the Centre which her girls attend, and should see that the teacher of housecraft also knows a good deal about the work of the girls in school. The housecraft teacher can with advantage be invited to staff meetings and take a part in the school functions such as Open Days and Exhibitions of work which are held at the school. The school has an important duty to perform in seeing that the girls adopt the right attitude of mind towards housecraft, a subject which may seem to them—as also to class teachers who are concentrating all their attention on their own particular teaching—an interruption of the ordinary work of the school. It will be of great assistance towards securing this attitude of mind if the results of the tests in housecraft are incorporated with those of the terminal tests in the rest of the school work, and help to determine a girl's place in class.

3. **The Age when Instruction should begin.**—Since housecraft demands a certain standard of physique and some manipulative skill, it is not advisable for girls to begin this subject at too early an age. Present experience suggests that as a general rule instruction in housecraft in Elementary Schools is best given in the last two years of school-life, when girls are physically and mentally more fitted for the work than they are at an earlier age. These conditions make it important that the work should now be approached from a somewhat different standpoint from that adopted when the majority of girls began their housecraft instruction at the age of eleven. They will be able to do more work in a given time, to respond to greater demands upon their intelligence, and have a wider range of knowledge gained both at school and at home to apply in their housecraft work.

4.—**The Content of the Course in Housecraft.**—A comprehensive scheme of instruction in housecraft includes

housewifery, laundrywork and cookery. This foundation work should, where possible, be followed by a course in home organisation. In view of the age of the girls, the teacher cannot hope to do more than lay a simple but sound basis for future work. A high standard of craftsmanship within the limits of what is attempted should, however, always be aimed at. This will mean some repetition of the work during the course in order to enable the girls to carry out effectively the various household duties. The time allotted to the different parts of the course, and the order in which they are taken, must depend to some extent on premises and on the organisation which is most convenient in the area, but as a general rule about twice as much time should be given to cookery as to laundrywork or housewifery, it being a more difficult subject and requiring much practice.

The equivalent of one day a week for at least a year will be necessary to deal with the foundation work outlined above, and there should be no break in the continuity of the instruction once it has begun.

5. The Organisation of the Time for Housecraft.—The total time necessary for housecraft can be secured in various ways and its distribution should depend on the school organisation and local conditions, e.g., it may be that half a day a week for two years, or two half-days a week for one year will meet the requirements of the schools better than one day a week for one year. These variations do not exhaust the methods of organising housecraft, but, whatever method is adopted, it should take into consideration the fact that certain forms of practical work cannot be satisfactorily carried out in a short lesson. For example, a whole-day system is the most convenient for laundrywork; the girls can then wash in the morning, iron in the afternoon, and complete all the processes in the day. Under a half-day system, they frequently have either to bring the garments to school rough-dried, or take them home unfinished.

If girls come for a whole day for cookery, the heavier work can be done in the morning and the lighter work in

the afternoon, as is the case in the ordinary home. Sometimes the work may be so arranged that the food cooked in the morning lessons provides a meal for the children who stay at school at mid-day. In the afternoon the girls can be taught various ways of utilising the food left over, or can learn to make fresh dishes. In some areas the first half of such a double lesson is given in the afternoon and the second half on the following morning, the aim being to teach the girls to look ahead, as a good housewife should, and to prepare in advance something that will help towards the provision of the next day's meals.

The advantages of a whole day or two consecutive half-days are more obvious still in the case of home organisation. The girls gain a clear idea of a day's routine, doing the heavier work in the morning and the lighter and more recreative work in the afternoon.

Wherever possible, the lessons should be of about 2½ hours' duration.

6. **The School and the Organisation of Housecraft.**—It is important when considering what arrangement of time to adopt for housecraft to do everything possible to reduce to a minimum the disturbance of the general organisation of the schools from which girls are withdrawn. So long as the Centre system exists and the number of girls that can be taken with safety by one teacher in a cookery class cannot exceed 20, some disturbance of the ordinary school work is inevitable, but nothing militates more against the maintenance of that sympathy which ought to exist between school and Centre than the imposition of arrangements which appear to interfere unnecessarily with the school organisation. Both school and centre ought to be prepared to give up something in order to find a workable arrangement.

The school would naturally prefer an arrangement by which girls are selected for housecraft on a class basis. But senior classes often contain girls of eleven years and under who are young to begin housecraft. The older girls must be chosen first, and, only when the school organisation would be seriously disturbed if the younger girls were not included, should they be selected. On the other hand,

complete groups of 18 or 20 girls should be taken from a class when possible. To take three smaller groups from a class when two larger would suffice is an unnecessary disturbance which should be avoided.

In some places the whole of a class is sent out in three sections to three different Centres for cookery, laundrywork and housewifery respectively, and the girls move from one Centre to another until their instruction is completed. This arrangement suits the schools but presents some drawbacks from the point of view of housecraft. These ought not to be insurmountable.

Where a school contains backward girls of twelve years and over in the lower classes, it is for the school to make the necessary arrangements, either by forming a special class for backward girls or otherwise, to prevent the lower classes being disturbed by the withdrawal of these girls for housecraft.

The promotion of girls from one class to another in the course of the year often affects the organisation for housecraft, since a class which began with 20 girls may be reduced in numbers at the beginning of the second or later terms. This difficulty may be met by re-grouping the girls in the housecraft classes so that the promoted girls may attend with their school class. A thoughtful teacher will reduce her difficulties by taking new work with the whole class and grouping the girls for their practical work.

7. **Syllabuses.**—Syllabuses should be drawn up by the teacher of housecraft after consultation with the head teacher of the school. Among the considerations that will have to be taken into account are the type of organisation adopted, the time available, the work the girls have done in school, especially in science, their home circumstances. In some cases it may not be possible for a school to attempt the whole ground described in sections 8-11, in others a school may easily attempt more. A syllabus suited for a class of girls who are alert and intelligent and who have good home conditions might have to be modified for girls whose home environment had helped to retard their physical and mental development. Each teacher of housecraft must

review the position for herself and in consultation with the head teacher decide what parts of the complete course she can most advantageously teach and in what order she will take them. To experienced teachers a broad statement of the ground to be covered may be of more value than a detailed syllabus.

II. THE COURSE IN HOUSECRAFT.

8. Housewifery.—In order to secure a high standard of craftsmanship and to simplify the teaching, many teachers find it wise to deal with the branches of housecraft in turn and to begin with simple housewifery and follow on with laundrywork and cookery. In housewifery attention may be directed to the source and action of dust, dirt, stains and decay, and to their prevention and removal; to the care of kitchen utensils and fittings, crockery and glass; to the nature and cleaning of hard and soft metals and different wooden articles, whether plain, painted, stained or polished. Some instruction may also be given on the construction and care of sinks, drains and stoves, and the cleaning implements themselves, and also on the making and storing of cleansing agents and polishes.

The character of the premises in which the instruction is given will determine whether these topics should form a short introduction to the year's work or whether they can be more effectively dealt with concurrently with the instruction in laundrywork and cookery.

9. Laundrywork.—Lessons on methods of washing and finishing different kinds of fabrics, including cotton, linen, wool, silk (real and artificial), cloths of mixed materials, woven and knitted, white and coloured, and different types of garments, will form part of the course in laundrywork. The girls will also learn something of the origin and nature of the materials which they wash, of appropriate cleansing and stiffening agents and of the use of simple disinfectants.

Laundrywork lessons afford valuable opportunities for teaching hygiene and for following up any such teaching given in school and special attention will be paid to the

washing of personal and household linen, and this part of the work will gain in value if the girls have previously been taught something about the functions of the skin. The importance of outdoor drying, the purifying effects of sunlight, the need for washing the outer garments as well as the under garments of young children, and the thorough airing of clothes should be emphasised. Some simple experiments with water as the chief cleansing agent should be given, use being made of any knowledge which the girls have gained in their lessons in science. The difficulties arising from the hardness of the water which may have to be used for laundry purposes will be readily appreciated by a class which understands the meaning of "solution" and "suspension," and has investigated the properties of lime and its derivatives.

At a later stage instruction on the renovation of garments and other household articles might include lessons on dyeing.

10. Cookery.—The main aim in cookery is to teach the girls to prepare and cook simple dishes. Dishes should be chosen which illustrate the different processes of cooking, e.g., steaming, boiling, stewing, baking, grilling and frying, and the appropriateness of each process to different materials should be explained. The work might include the preparation and cooking of vegetables; the cooking of meat with special attention to the cheaper cuts; soup-making and the value of soups; the preparation and cooking of fish, both fresh and dried; pastry-making and the making of bread and cakes; the heating of cooked food; the preservation of eggs, fruit, vegetables and herbs. The right proportions of the ingredients of dishes should be carefully taught. The proper care of milk, and the value of clean milk in a diet should be stressed.

Later, each girl should be taught to estimate quantities when providing meals for a varying number of persons; to plan, prepare and cook complete meals so as to have them ready at a given time; to serve these meals in such a manner as will train the girls to appreciate the part played

in stimulating the appetite by dishing up cooked food in a dainty and attractive manner ; and to use up cold cooked food in a variety of appetising ways.

Girls should be taught in a simple way the composition and dietetic value of the most important classes of food stuffs ; the necessity for varying the proportions of the constituents in a diet according to a person's age, health and occupation, and according to the season of the year. With this they should learn the place and value of uncooked food in a diet, the value of fruits and vegetables, uncooked and cooked, either alone or in combination with other foods, and how to prepare simple dishes, such as salads, from fruit, nuts, root and green vegetables.

It is possible now to procure striking diagrammatic and pictorial illustrations of the dietetic value of the most important classes of food stuffs. Many teachers, however, wisely prefer to prepare their own illustrations so that they may fit in with their special scheme of work. As a rule, it is not a good plan to display all the diagrams on the walls at one time ; it is better only to hang up those which are concerned with the subject-matter of the lesson in hand.

In every lesson strict attention should be paid to choice and economy in the use of food materials and the saving of fuel. The girls should regularly note the prices of the ingredients, in the first instance the cost of each dish, and later on the cost of each meal, being worked out. In the preparation of meals the girls should learn how with a limited sum they can provide a nutritious meal with a proper balance of diet.

The saving of time and labour, as well as that of money and materials, should always be considered, and, towards this end, emphasis should be laid on order and cleanliness in working. Here the example of the teacher in her own demonstrations and in the care of the rooms is of the highest importance.

In their practical work the girls ought as far as possible to work individually, since only by so doing can they learn to observe changes that take place during the making and

cooking of any dish, acquire a reasonable degree of manipulative skill, and be trained in the exercise of initiative and independent judgment. Moreover, the real pleasure a girl experiences in producing, through her own efforts, an attractive and well-finished piece of work cannot be underestimated.

It is very important that girls should do a large amount of practical work, and it should invariably occupy the greater part of the lesson. Much of the failure of housecraft teaching, especially in the case of cookery, is due to the omission of demonstration, or to insufficient practical work, or to the hurrying of practical work without due attention to detail.

The age of the girls and the short time available preclude any attempt to give instruction in the higher branches of cookery or in anything outside the ordinary possibilities of a simple household. Nor can theoretical instruction in the methods of cooking or in the mechanism of digestion go beyond what is necessary for a general understanding of the methods practised and of the lines on which the diet suitable for different ages of life in different seasons must be regulated.

II. Home Organisation.—Upon this foundation of housewifery, laundrywork and cookery can be planned, when the necessary premises are available, a useful course of home organisation specially suited for girls in their last year of school life. Previously the girls will have concentrated on one subject at a time; now they will deal with the routine management of a home where many operations must be going on at once. The daily, weekly, and "spring" cleaning of rooms will be carried out concurrently with such operations as cooking, household washing and mending. Personal and domestic hygiene can also be taught incidentally. The girls should begin to realise that due thought for themselves and their home is essential for health and national well-being, and to understand the importance of clean surroundings and wholesome food for old and young alike. They should be shown how

a thrifty housewife can save time and energy by the exercise of careful forethought, prudent outlay and judicious economy.

The æsthetic side of the home should not be neglected. Girls should be trained to appreciate furniture and furnishings which, however inexpensive, are at once simple and suitable for the purpose, sound in construction and easily kept clean.

This is an opportune time to teach how to keep household accounts, to take care of infants and young children, and when possible to give some simple lessons in first-aid and home nursing.

Girls can be encouraged to collect and bring illustrations, press-cuttings, pictorial advertisements, etc., bearing on their work in housecraft. These can be filed methodically and indexed ; such a collection is useful for reference and stimulative of ideas, not only for members of the class at the time, but for future pupils who may attend the Centre.

12. Housecraft in Rural Areas.—The bearing of housecraft on rural life needs attention. The teaching given in country schools and centres sometimes fails because it does not take sufficient account of actual conditions. This may be partly due to the fact that all the Training Colleges of Domestic Subjects are situated in towns, and the life of the countryside is somewhat remote from their experience. It is very desirable that teachers who intend to work in rural areas should have some special training to prepare them for the conditions of country life and to teach them to apply their knowledge of cookery to the preparation of the food materials which can be grown in cottage gardens. The principles of butter-making and the making of soft cheeses, might find a place in rural Central Schools or Advanced Classes. Probable developments in small and cottage holdings, where the woman will be the partner of the man in the work of the holding, make instruction on these lines very necessary for country girls.

The same foundation work in cookery is necessary both in urban and rural schools, but in the country it is important to direct more attention to the different ways of using

country produce to the best advantage. Consideration should be given to a greater variety of ways of dealing with vegetables, cheese, eggs, etc., and the preservation of fruit, vegetables, herbs and eggs, by bottling, drying, and pickling should be taught. Lessons in the cooking of meat might be illustrated by the cooking of pork, bacon, rabbit and poultry. Time will not allow for the teaching of everything which may seem desirable, and it is a case for a wise selection of topics having regard to local conditions. But unless the work in housecraft in the country bears some relation to village life, much of its value will be lost.

13. Central Schools.—The work done in housecraft in Central Schools should obviously be rather more advanced in character than that done in the ordinary school. It will, as a rule, be planned on the same lines, but the instruction should be designed to call for more observation, forethought and resource on the part of the girls, and to give them a higher degree of manipulative skill in a greater variety of processes and dishes. Since the girls will generally have been selected because they possess more than average ability, more may be accomplished in the time available, and more frequent opportunities given them to work on individual lines. The amount of time given to housecraft should never be less than that given in an ordinary school, and in Central Schools with an industrial bias it may be considerably more. In schools with a commercial bias it may be necessary to limit the instruction to one, two or three years, and there is something to be said in favour of beginning the work during the second year.

In schools with an industrial bias housecraft might be taught throughout the whole of the school course. In these schools there will be opportunities for directing more attention to the dietetic value of food, to the planning and cooking of a greater variety of dishes and complete meals, and to attaining a higher degree of manipulative skill and dexterity in laundrywork. It may also be possible to include more advanced instruction in the use of tools for the repair of household apparatus and equipment and to

include lessons on such household matters as the gas, water and electric supplies, and the necessary correspondence involved in dealing with Authorities such as the Sanitary and Water Authorities. The aim of this instruction would be to make the girls competent in the home and able to meet household emergencies. Other subjects for treatment, equally useful and interesting, will suggest themselves according to the circumstances of the school. The important thing is that the work should be alive and the subjects selected should bear some relation to home life and experience.

14. **Note-Making.**—Both in Central and Elementary Schools girls should learn to formulate their own notes during the housecraft lessons. The notes should make a genuine demand on attention and intelligence, and their quality will enable the teacher to judge whether her teaching has been of real value. Girls may also with profit be set from time to time to write on subjects connected with their work in housecraft. This can be done either in the Centre or in their own school. In the past girls' notes have been too often merely a statement of recipes. Since simple recipe books exist, this is waste of time. It is not desirable for girls to try and memorise recipes, but they should learn their way about a recipe book and become accustomed to follow a recipe exactly.

III. PREMISES AND EQUIPMENT.

15. **Premises.**—There is no doubt that in all cases where a school is large enough the best plan is to include rooms for housecraft in the school buildings, or, if this is impossible, to allocate housecraft premises definitely to the use of the school, and in recent years there has been a considerable movement in this direction. In areas, however, where a large proportion of the schools are small or are housed in buildings with no spare accommodation, the Centre system is still the most convenient form of organisation. Centres which are designed specially and exclusively for housecraft have certain obvious advantages over

classrooms which are also used for other work and are in consequence difficult to keep clean. The most serious drawback of the Centre system is that it tends to detach housecraft from the ordinary work of the school, but much can be done to counteract this.

16. Equipment.—In the choice of equipment for a Domestic Subjects Centre regard should be had to economy in cost, to efficiency, and to the saving of labour. A little forethought in the choice of furniture, china and table linen, curtains and covers and the harmonious arrangement of these would give the Centre a home-like appearance and help to cultivate in the girls a sense of orderliness and beauty.

The key-note of modern equipment is simplicity and good workmanship, and it is economical in the long run to buy articles of good quality which will be able to stand the heavy wear and tear of Centre use. Tables which can be easily moved are to be preferred. Adequate storage accommodation for utensils, food stuffs, linen such as towels and sheets, ironing blankets, etc., must be provided. If no pantry or larder is available a well-ventilated cupboard and meat safe would be required. Dressers are unnecessary and are not labour-saving unless they have glass fronts which add to the cost. For laundrywork, small movable baths or tubs, such as the girls are accustomed to use in their homes, are more suitable than the heavy fixed wooden tubs which were once provided. It might, however, be useful to provide one or two fixed porcelain tubs in order to teach the advantages, use and care of this more modern piece of apparatus. For cookery, it is not always a good plan to have a very large range; a smaller range, supplemented by gas, oil or electric stoves according to the kind in general use in the district, will be found better for teaching purposes, but the stoves must be sufficient in number and size, and be kept in good repair. It is not an extravagance to lay on hot water over the sink; it is one of the best forms of labour-saving. It is wise in every Centre to have fire blankets and a first-aid box.

17. Provision of Materials for Cookery.—Materials are provided by the Education Authority, and it is the general practice of the teachers of cookery to attempt to defray the cost of the cookery materials by sales of the cooked food to the girls. This is undoubtedly a sound practice, but in some circumstances, e.g., in poor neighbourhoods and in the case of classes taught by an itinerant teacher, sales cannot always cover the cost of materials. It is of course essential for the efficiency of the work that sufficient material is always supplied to give the girls scope in manipulation, and an understanding of the time required to cook food in reasonable quantities: it is futile to make bread from 2 oz. of flour or a milk pudding from $\frac{1}{4}$ pint of milk.

A growing practice is to allow girls to bring ingredients from home, especially in country districts where it is sometimes easier for the girls to bring eggs, milk, fruit and vegetables than to pay for the cooked dishes. It gives reality to the work, it makes a link between the home and the school, and it often affords an opportunity for each girl to handle larger quantities than she otherwise would. Care, however, is necessary to see that the provision of materials does not become a burden on the parent, and to ensure that the ingredients are appropriate in quantity and to the work in hand.

At a certain stage in their course, it is good experience for the girls to help in purchasing materials for the Centre. The payment in ready money for all purchases they make is important as a means of training them to buy on a cash, rather than on a credit basis. Where there are school gardens, the cookery class can usefully purchase fruit and vegetables from the garden.

18. Disposal of the Cooked Food.—The ideal arrangement is that girls should test their work in cooking by eating it. This is customary in America and on the Continent, but is the exception rather than the rule in this country, and unless the girls buy the food which they have cooked they may not have an opportunity of tasting it.

In many cookery classes, especially in rural areas, girls come from a distance and remain at the Centre during the dinner hour. The Centre could possibly do more than is done at present to provide hot meals, not only for the cookery class, but also for other children who come from a distance. The syllabus might be so planned that the dishes cooked during the morning formed a complete meal, or the work of the lesson might be supplemented by preparing any extra dish required, e.g., potatoes, eggs, milk or cocoa.

In towns, the preparation of meals for the teachers, for necessitous children, as well as for children who pay, may form part of the work in cookery. The number of meals provided by one Centre must, however, be definitely limited so that the educational side of the work is not sacrificed.

19. Reference Library.—A reference library is an essential part of the equipment of a Housecraft Centre. It should include books and magazines dealing generally with the various branches of housecraft or specifically with special processes, collections of simple recipes and other books which are likely to be useful. There are intervals in the practical work, (e.g., when food is cooking), when girls have time to consult books and so to widen their outlook in their work. The books should be catalogued, kept on easily accessible shelves and taken care of by the girls. Prices, lists, samples of materials suitable for wall, floor and bed coverings and illustrations of modern equipment might also be available for reference.

CHAPTER XIII.

GARDENING.

SUMMARY OF CONTENTS.

I. GENERAL CONSIDERATIONS.

Section.

1. **Gardening as a School Subject.**—A useful manual occupation with an important theoretical side. It should not be regarded as a training for industry, but should lead to an interest in nature. It is wise to keep in view its utilitarian aspect to enlist the interest of the public.
2. **Gardening in Relation to the Curriculum.**—It should not be treated as an isolated subject, but every opportunity should be taken to use it to add reality to the ordinary work, and the ordinary work should assist the gardening. Its relation to the school course in science.
3. **The Teacher.**—Where possible should be on the school staff. How to maintain close touch with the school work. His assistance to the pupil.
4. **Gardening Centres.**—Often necessary in towns. The class teacher should accompany his class. The responsibility of the head teacher for his schools' work.
5. **The Laying-out of the Garden.**—Different systems. A less formal type for certain rural schools.
6. **The Time-Table.**—Seasonal arrangements. Emergency lessons.
7. **Winter Work.**—What is possible.
8. **Reference Library.**

Section. II. DETAILED SUGGESTIONS.

9. Introductory Note.
10. The Suitability of the Site.
11. The Site of the Garden.
12. The Tools and Equipment.
13. Care of Tools.
14. Choice of Vegetables to be grown.
15. The System of Cropping.
16. The Use of Manure.
17. Fruit Culture.
18. Flower Culture.
19. The Use of Labels.
20. The Attractiveness of the Garden.
21. Planning of the Plot.
22. The Right Use of Tools should be taught.
23. The Tidiness of the Garden.
24. Note-Making.
25. The Importance of Close and Accurate Observations.
26. Experimental Work.
27. The Course should be Progressive.
28. The Economical Disposal of the Garden Produce.
29. Saving of Seeds.
30. Competitions.

III. GIRLS AND YOUNGER CHILDREN.

31. Gardening for Girls.—Just as suitable for Girls under certain safeguards.
32. Younger Children.—What children of 8–11 years can do.
What Infants can do.

I. GENERAL CONSIDERATIONS.

I. Gardening as a School Subject.—Gardening is “practical” in both senses of the term. It is, or should be, eminently useful, and it is a manual occupation which should lead to greater skill of hand, more careful observations, and

a fuller appreciation of the virtue of patience and the joys of successful craftsmanship. It has an equally important theoretical side. The school garden may produce fine vegetables and flowers and yet fail to achieve the object for which gardening is included in the school curriculum. The pupil must be led to understand the principles underlying common gardening practice. The instinct for the routine of gardening and the manual dexterity of the working gardener can be acquired only by long practice and experience on a larger scale, but the foundation for that intelligent and sympathetic attitude towards plant life which differentiates the skilled from the "rule of thumb" gardener can be laid in the school garden.

School gardening, therefore, rightly understood, is allied to the study of natural history and should not be regarded as training for an industry. A purely scientific interest in gardening is not one which it is necessary, or desirable, or indeed possible to cultivate in pupils in Elementary Schools. But, starting by treating nature as their ally in a work of obvious utility, an ally who cannot be over-ruled, but who repays consideration and deference with abundant generosity, they are likely to go on to show a lively and permanent interest in nature in general, and that intelligent wonder and curiosity which lie at the root of scientific research.

While the educational value of the garden must always be regarded as of first importance, it is quite wise to keep in view its utilitarian aspects also. Gardening is, perhaps, the most important domestic industry of this country. The handy and resourceful workman, whether on the farm or in the workshop, is usually a good gardener, and the keen competition at village and suburban flower-shows extends to all classes. There is, therefore, in the rural community and among the very considerable section of the town population which is interested in allotment gardening or in such cottage industries as poultry-keeping or bee-keeping, a large stock of sympathy and interest to draw upon, and interest of a kind which will have a healthy reaction on the work in the school garden.

2. Gardening in Relation to the Curriculum.—Where gardening is taught, it should never be treated as an isolated subject. Every opportunity should be taken, on the one hand to use the gardening as a means of adding reality to the instruction in other subjects, and on the other to deal with those subjects in such a way that they will assist the instruction in gardening. There is no reason why the reading of the older boys should not include some good books on horticulture, or why their composition exercises should not be drawn from time to time from their work in the garden or from their garden note-books. In Arithmetic again, many branches, such as scale-drawing and mensuration, will appear more real to the pupils when they see them put to practical use in their garden work. In some districts it may be useful to examine the systems of local weights and measures (e.g., the "Cheshire rood" and "Cheshire acre," the northern "load" of potatoes, or the south-western "bag" of apples), and to compare them with the standard ones. The possibilities of "Rural Handwork" are explored in Chapter X. And the garden will afford a wide choice of objects for the children to draw, while they will find many opportunities of using their skill in drawing in illustrating gardening operations in their garden note-books.

The possession of a garden will, however, have its greatest effect in determining the school course in science. Not only will it be possible to carry on much of the earlier observational work in the garden, but it will be possible to arrange for the older children a course of study of plant and animal life in which the experimental work can be carried out in close connexion with the work of the garden. Such a course is suggested in Chapter VI.

3. The Teacher.—Wherever such an arrangement is at all possible, instruction in gardening should be given by a member of the school staff. The teacher should take every opportunity of improving his qualifications by attending such courses of instruction as are available, and will naturally welcome any help that the Local Education Authority's organiser or visiting instructor in horticulture may be able

to give. The importance of maintaining a close relation between the garden work and the ordinary school work is so great that the employment of the class teacher, with his personal knowledge of the pupils and of school methods, is usually preferable to that of a highly trained or professional visiting instructor, even though there may be some loss of technical efficiency. From a purely practical point of view the class teacher has also the great advantage of being able to alter his time-table to suit the weather. On the other hand, where there is no competent teacher in the school it will be necessary to secure the services of a visiting instructor if gardening is to be attempted. Even in such cases the class teacher should make a point of attending the instruction both as a learner and with a view to keeping up the connexion with the ordinary school work. Where this outside assistance is not available, and where there is no teacher in the school who takes an intelligent interest in gardening, it should not be attempted at all. Perfunctory and insincere work in the garden is mischievous both to teacher and pupil.

Gardening has one advantage in that it lends itself readily to experiment. Failures, though disappointing to the gardener, may often be as educative as successes, and though it is desirable to guard against the discouragement arising from wholesale failure, it is equally desirable to cultivate a sense of responsibility in the pupils by allowing them to realise the consequences of bad or slovenly methods, such as sowing too thickly, insufficient thinning or weeding, or neglect to act promptly when the onion fly or carrot fly appears. In this the teacher has to keep to a just mean between doing too much and too little for the pupils. The temptation in school gardens will usually be for the teacher to do too much, as both he and his pupils naturally desire plentiful crops to crown their efforts. In any case, where alternative methods of cultivation are allowable, it is obviously desirable that the teacher should encourage the pupils to make a free choice between them. The experimental or demonstration plot will afford the best opportunities for showing the effects of different methods of sowing,

planting out, manuring, cultivating and the suitability or unsuitability of certain types of seeds or plants to certain circumstances. The manner in which this plot is handled and the experiments conducted will afford better evidence of the capacity of the teacher to educate his pupils than the most imposing array of healthy vegetables on the individual plots. But the spirit of experiment should not be limited to the demonstration plot.

4. Gardening Centres.—In the case of town schools, the difficulty of obtaining land near the schools is sometimes met by the provisions of a gardening Centre, with a sufficient area of land to give each school a garden, and with one or two full-time gardening instructors in charge of the Centre. The educational success of these gardening Centres will depend largely on the teachers' ability to avoid the disadvantages usually associated with the "Centre" system. It is always desirable in such circumstances, that a teacher on the regular school staff should accompany the gardening class and take an active share in the instruction. It is often convenient for a complete class of 30 or 40 pupils to attend at the Centre together, forming two gardening classes, one of which is taught by the gardening instructor and the other by the class teacher.

In any case, the head teacher of the school ought to be responsible for the efficiency of the gardening instruction and for its co-ordination with the other work of the school.

5. The Laying-out of the Garden.—The relative values of the "single," "dual," and "common" plot systems of laying out a school garden have been much discussed. Each system has its own merits and demerits, and the decision which system to adopt must be left to the responsible teacher, who will be guided by the space at his disposal, his knowledge of circumstances and his experience. There is no reason why a school garden should not be worked partly on the common-plot system and partly on the dual or single plot system. Where the common-plot system is adopted, it is generally desirable to provide a few individual plots

in order to give the older or more experienced pupils opportunities for more or less independent work in the arrangement and management of their crops.

There is room, however, in certain rural schools for a less formal type of garden which may depart from all three of the traditional systems named above. Such a garden could be arranged as a cottage garden with a relatively small space allotted to vegetable culture and a large area to fruit and flowers, the whole being planned with an eye to beauty as well as utility. A garden of this kind would be specially suitable for a Junior School or for one of those small "two-teacher schools," where in the past the difficulties of organisation have often prevented gardening being taught at all. In such an informal garden as is here contemplated useful occupation could be found for all the boys in the school and the girls might also have a responsible share of the outdoor work allotted to them.

6. The Time-Table.—The time-table should provide for continuous instruction in gardening throughout the year. While about two hours per week will usually be required in spring and summer, a somewhat shorter time may suffice for outdoor work in the winter. The teachers must exercise discretion in varying the time-table to suit the weather and the condition of the soil; there will also be occasional need for emergency lessons in busy seasons or after prolonged periods of bad weather. While such emergency lessons can easily be arranged in the single school garden, the difficulties will be greater where several schools attend at a Gardening Centre; such extra lessons can then only be taken by pre-arrangement (which should not be impossible) between the head teachers, and the gardening instructor at the Centre. It is advisable where several classes attend the same Centre to provide an emergency set of tools for use under these special circumstances.

7. Winter Work.—In too many schools the gardening classes do no outdoor work during the winter. Thus, many important and even essential operations, which should

be included in a course of gardening, are omitted. The following notes indicate the kind of work which may usefully be undertaken during the winter months :—

- (a) The winter provides a convenient opportunity for summarising the results of the past season, making up accounts and preparing the year's balance sheet.
- (b) Indoor experimental work in science relating to gardening, e.g., the study of the physical properties of air, water and soils, may be carried on when outdoor work is not possible.
- (c) It will be necessary to discuss the arrangement of the garden and to set out the cropping plans for the coming year, and also to undertake such preparatory work as the selection and setting up of seed potatoes in sprouting trays, raising seedlings of cauliflowers, onions, sweet peas, or half-hardy flowers in trays or boxes, or growing bulbs in bowls or glasses. The new season's seeds should be procured and tested for purity and germinative energy. If a handicraft room or a carpenter's outfit is available there may be tools to repair and possibly simple appliances to be made and cold frames, or hand-lights to be made, glazed and painted.
- (d) There will always be winter days when outdoor work which calls for attention may be undertaken. Thus, any necessary repairs to fences and paths can be carried out, manure should be procured early and neatly stacked, pea sticks and bean poles obtained and trimmed ready for use, materials gathered for potting soil and possibly a hotbed could be made where a frame is available.
- (e) In preparation for the coming spring, digging should be undertaken whenever the soil is in proper condition, top dressings of manure, marl, chalk, or lime applied where necessary to the soil and to such perennials as rhubarb, seakale or asparagus.

- (f) On the fruit plot, trees and bushes will need winter washing and pruning, stocks may be planted, scions obtained, carefully labelled and heeled in, raspberries cleaned and tied in. Surface mulching and winter spraying may also be necessary.
- (g) In the flower garden, perennials may be lifted, divided and re-planted; herbaceous borders may need cleaning and mulching; bulbs may be planted; climbing plants and roses trained; wild rose briars obtained and planted in November ready for budding in the summer.
- (h) If bees are kept, the hives should occasionally be examined to make sure that the roofs are watertight, the quilts dry, and the entrances clear of dead bees. Foundations may be wired in, section-racks fitted up, spare hives repaired and painted and general preparations made for the coming season.

8. Reference Library.—It is of the first importance that boys and girls should be systematically trained to refer to books for information on the practical details of gardening. They should be encouraged to read up in gardening books or periodicals the particulars of any process on which they are engaged, or any crop which they are cultivating. The sectional volumes of collected leaflets issued by the Ministry of Agriculture and Fisheries, should be on the library shelf of every school gardening class, and teachers should take care to procure copies of any new leaflet which may be issued by the Ministry on the subject of gardening or any other rural industry in which the school is interested. For information as to the price of the various sectional volumes of leaflets and of the separate (unbound) leaflets, application should be made to the Secretary, Ministry of Agriculture and Fisheries, Whitehall Place, London, S.W.1.

The reference library may also usefully contain some of the very interesting trade catalogues issued by nurserymen and seedsmen. Many teachers make good use of these catalogues.

II. DETAILED SUGGESTIONS.

9. **Introductory Note.**—The following sections (10-30) deal with some of the principal matters to which a critical observer, who wished to ascertain whether the work of the gardening class was being done on right lines and with fair prospects of success, would direct his attention.

10. **The Suitability of the Site.**—A school garden should, as a rule, adjoin or be within five minutes' walk of the school. In most cases it should be fenced and wire netting should be provided where necessary.

The quality of the land is of minor importance, as it can usually be improved by careful cultivation. But certain sites cannot be made suitable for school garden purposes and should be avoided as far as possible. For example :—

- (a) Land heavily shaded by trees or impoverished by their roots.
- (b) Land which lies so low that it cannot be effectively drained.
- (c) Land where the soil is very shallow and where from the rocky nature of the subsoil it cannot be deepened by cultivation.

11. **The Size of the Garden.**—For a class of 14 pupils 28 rods of land is a suitable area. This will allow of the formation of 14 one-rod plots, or 7 two-rod plots, with the necessary pathways, leaving sufficient land for a fruit plot, a nursery and seed plot, a demonstration or experimental plot, flower borders, a tool shed, cold frames, manure, compost and rubbish heaps.

Many larger schools, in making provision for the practical instruction of all the boys over 11 or 12 years of age, may find it desirable to increase the number of their garden classes, and may also find it convenient to organise gardening classes of from 15 to 20 pupils. For such large schools suitable provision of land would be at the rate of 2 rods per boy up to 40 pupils and $1\frac{1}{4}$ rods for every boy above that number.

12. **Tools and Equipment.**—A minimum equipment of tools would include :—

- (a) Spades and forks—as many altogether as there are pupils in the gardening class. (The proportion of spades to forks should vary according to the character of the land, e.g., more forks than spades where the land is exceptionally stiff).
- (b) Dutch hoes, draw hoes, rakes (assorted sizes) trowels and weeding forks—half as many of each as there are pupils in the class. (Swan-necked draw-hoes are better for practical use than those with a cylindrical socket which are often provided).
- (c) A wheelbarrow, one or two watering-cans, and several lines and dibbers, some of which may be home-made. For fruit culture, pruning and budding knives, and a spray syringe.
- (d) A cold frame, always very useful, and in the north of England almost essential, for the raising of early seedlings and for carrying cuttings of herbaceous perennials over the winter.

Other useful items of equipment are a Gunter's chain or tape, a spirit-level, a set of greengrocer's scales and weights, or a spring balance, and two or three pocket lenses.

In certain districts special varieties of garden tools are in almost universal use, e.g., the Canterbury hoe in the south-eastern counties, the mattock or "hack" in the south-west, and the three-cornered hoe in the Midlands. Pupils in these districts should be familiar with the local tools and learn how to handle them properly ; and one or two such tools should be added to the ordinary school of equipment.

A lawn mower and edging shears are necessary where there are grass paths between the plots or the wide ornamental grass alleys which add so much to the beauty of some of the large school gardens. Where these tools are not available, grass walks should not be attempted.

13. **Care of Tools.**—(a) There should be a proper tool store, fitted with racks or pegs for hanging up the tools in sets and with shelves for the orderly storage of miscellaneous articles. These fittings can often be made by the boys in the woodwork class.

(b) The tool-shed or tool-room should be large enough to store seeds and artificial manures.

(c) The tools should always be carefully cleaned, dried and rubbed over with an oily rag before they are put away after use. Where tools are kept in an outdoor shed, constant care must be exercised to keep them free from rust and they should be oiled thoroughly before the holidays.

14. **Choice of Vegetables to be Grown.**—The vegetables grown should be suitable to the district and sufficiently varied to teach the ordinary operations of cottage gardening.

Most of the following should accordingly be grown: Broad beans, scarlet runners, dwarf beans, peas, cabbages, savoy, brussels sprouts, curled kale, cauliflowers, broccoli, parsnips, carrots, turnips, beet, onions, leeks, potatoes (early and main crop), celery, spinach (annual and perpetual), lettuces, radishes, parsley, rhubarb, Jerusalem artichokes and the common herbs.

15. **The System of Cropping.**—The plan of cultivation, due regard being paid to climatic and soil conditions, should make provision for:—

(a) The deep autumn cultivation of a part of each plot, which should be laid up rough for the winter at any rate if the land is heavy.

(b) The production of a continuous supply of vegetables throughout the year, by means of a proper succession of crops, e.g., early peas, beans, and potatoes may be followed on the same ground by celery, broccoli, and winter greens, so as to secure the greatest possible yield.

(c) A well devised system of intercropping, so that the ground may be continuously occupied, e.g., lettuces brought on in the cold frame or seed bed

may be planted out along the sides of celery trenches ; spinach sown between rows of peas ; cauliflowers or broccoli planted between rows of early potatoes after the latter have been finally earthed up, or turnips grown alongside rows of broad beans.

- (d) A proper rotation of crops in successive years. For example, in a good rotation brassicas (plants of the cabbage order) would not follow brassicas, nor would legumes (peas and beans) follow legumes ; potatoes should not succeed potatoes, nor should tap-rooted plants succeed other tap-rooted plants.
- (e) The economical use of manures. For example, gross feeders such as brassicas, celery or onions, which require plentiful manuring, may be followed by tap-rooted crops which produce the most shapely roots when grown on land which has been well manured for a previous crop.

The growing "monster" prize vegetable should be discountenanced, though there is no reason why the pupils should not compete with collections of ordinary vegetables at horticultural shows. The main object should be the growth of excellent vegetables for domestic use.

16. The Use of Manure.—While farmyard manure will be principally used, the use of various artificial manures must not be neglected, especially on the experimental plot. The use of different manures, nitrogenous, phosphatic, or potassic, for particular purposes, their suitability to certain soils and crops, and the methods of their application, should be discussed in simple, non-technical language and illustrated by means of demonstrations of the solubility and other properties of manures and of their effects upon different stages of growth and under different conditions, e.g., the use of nitrate of soda to hasten the growth of turnips at the seed-leaf stage, when the plant is most liable to attack by the turnip fly or beetle.

In districts where it is difficult to obtain farmyard or stable manure, and the soil is in consequence found to be deficient in humus, green manuring might be tried with advantage, catch-crops of vetches, lupins, rape or mustard being sown after the summer crops are cleared, and dug in when they reach the flowering stage or earlier if strong growth is attained.

17. Fruit Culture.—Fruit culture is in all cases desirable, though not always practicable. The fruits that should be included are: gooseberries, red and black currants, raspberries, loganberries or other hybrids, strawberries, apples, pears, plums and damsons. Among the operations that should be included are: raising from cuttings, planting, budding, grafting, pruning, summer mulching, grease-banding, winter-washing, dressing and spraying against various pests.

18. Flower Culture.—Each plot should have its own flower border, or a flower plot to be cultivated jointly by the pupils should be provided. Sometimes flowers can be grown by a class of girls or younger scholars as a part of their nature study. In any case a succession of flowering plants (annuals, biennials and perennials) throughout the spring, summer and autumn should be secured. The pupils should be encouraged to bring flower seeds, plants and bulbs for the border. When seeds are sown, they should be labelled, and it should be possible to work out colour schemes in the flower borders.

19. The Use of Labels.—If the best use is to be made of the garden for purposes of observation it is important that not only rows of seeds, but also all herbaceous perennials, bushes, trees and shrubs in the garden should have permanent labels plainly written in Indian or other water-proof ink, and that these should be renewed from time to time as they are defaced by the weather.

Some kind of descriptive label should also be attached to any experiment which is being carried out, whether in the open or indoors

20. **The Attractiveness of the Garden.**—In planning a school garden, the civilising effect of a well-arranged, beautiful garden as a means of cultivating good taste and a sense of proportion should not be forgotten. In all cases it is desirable that the school garden should be modelled on the lines of the home garden rather than on those of the market garden. Unfortunately, many of the existing school gardens have hitherto been regarded merely as plots for the growing of vegetables, and some of them are too small to allow of much space being devoted to ornamentation.

It is often possible, however, to obtain pleasing effects by simple means, as, for example, by a flower border or espalier-trained fruit trees along the main pathway, pillar or standard roses on the corners of plots, a rustic arch covered with climbers spanning a gateway or a path, an arbour with a bench, a rock garden, or even a small ornamental pond. Many garden classes have displayed not a little originality and resource in decorating with shrubs and flowers not only their school gardens but waste patches of grounds, hedge banks and moulds near their schools. Many ornamental and flowering shrubs can be propagated with ease, and their use adds greatly to the surroundings of a school.

An excellent feature of some of the larger gardens is the "assembly point"—a central ornamental garden with wide paths and a few rustic seats and permanent flower-beds and rockeries. Here will usually be found the school's meteorological station with a Stephenson Screen (or other lowered box on a stand) to hold the thermometers, a rain-gauge and a sun-dial. Here the weather records are taken daily and here the children gather for discussion before or after the lessons in gardening.

Among other developments which add to the interest of the instruction may be mentioned "Shakespeare Gardens" where the children grow all the flowers mentioned in Shakespeare; "Botanical Gardens" with small plots assigned to collections of plants with similar characteristics, such as stem twiners, leaf climbers, tendril climbers, hook climbers; plants with tuberous roots or which reproduce

themselves vegetatively by bulbs, corms, creeping stems, runners, and so on. At least one large garden has an interesting bed devoted to the wild plants from which our cultivated vegetables and flowers have been raised.

21. Planning of the Plot.—It is not necessary, nor is it desirable after the first year, that the cropping of all the plots should be identical. Pupils in their second year might be encouraged to select the particular varieties of vegetables for cultivation on their own plots. This introduces the element of individual responsibility. When the scale drawing of the plot is being prepared the teacher can best discuss with the pupil the merits of his plan. In all cases it should be that of the pupil and not that of the instructor. Plans of the cropping of each plot should be preserved from year to year for the information of the next class of pupils.

22. The Right Use of Tools should be taught.—(a) The teacher should take constant care to see that the tools are handled correctly, so that the "human machine" may work with a maximum of efficiency and the least possible expenditure of energy. The pupils should from the start be taught the right way to use the gardening tools. They should be taught to hold a spade at the correct angle and in such a way as to secure the proper leverage, to dig with a straight trench, to double-dig or to bastard-trench leaving an even surface as the work proceeds, to use the line in digging, planting and sowing, to sow at depths suitable to various seeds (e.g., in descending order—turnips, onions and radish, beet), to prepare trenches for potatoes, peas, beans, etc., to sow neither too thick nor too thin, to use the hoe and rake properly, to thin and transplant and especially to single beet, parsnips and turnips (singling is often badly done), and to prune fruit trees and bushes properly, both for shaping and for fruiting.

(b) Some teachers are too apt to do the more difficult operations themselves, especially where the common plot system is adopted. This tendency needs to be checked. The pupils should learn by doing, even if they make mistakes. A good teacher will first get the boys round him and

lead them to think out for themselves how a thing ought to be done. The teacher's demonstrations should be confined as far as possible to the experimental plot.

23. **The Tidiness of the Garden.**—(a) The rows of vegetables on a plot should be perfectly straight, the plots and borders free from weeds, the fruit trees and bushes free from lichen and blight, the plots edged neatly, the pathways kept in good order without unduly stripping the surface material, the hedges clipped. Tidiness in a garden is of great value, though, of course, efficiency must not be sacrificed to mere appearance. A corner of the garden should, if possible, be screened off by a privet or other hedge for manure and turves rubbish.

(b) It is usually necessary to make arrangements for keeping the garden tidy, and for disposing of the ripened crops during the summer holidays. Frequently no difficulty is experienced in apportioning this work among such members of the gardening class as spend their holidays at home. At the large Gardening Centres it will usually be necessary to place the gardens in the care of some responsible person during the holidays.

24. **Note-Making.**—If the instruction is to realise its full educative value it is essential that the pupil should keep records of his practical work, as well as of his observations in the garden and of the inferences he draws from them. Since a drawing or a sketch is often the best index of what a pupil has seen or failed to see, this mode of expression should be used freely with a view to giving him practice in exact observation.

For his records the pupil may use either an exercise book or a portfolio with loose leaves, which can often be made by the children themselves. Many teachers prefer the portfolio because it admits of the arrangement of the sheets in appropriate sections for different branches of the subject, which are capable of expansion and can be interleaved as required with drawing or graph paper. The portfolio offers distinct advantages in recording notes and observations, the collection of which may extend over a whole gardening

year or longer. It also affords valuable training in method and in the logical arrangement of data for ready reference and comparison.

The portfolio or note-book may include sections dealing with other exercises which are based upon, or directly associated with, the garden work. Thus, there might be included :—

- (a) A plan of the whole garden showing the arrangement of the paths and plots, and a cropping plan of the pupil's plot set alongside the plans of the two preceding years, so as to show clearly the rotation of crops.
- (b) A section containing a record of the pupil's practical work.
- (c) A section containing a "Time-table of Growth" showing, for each crop, the dates of sowing, germination, thinning or transplanting, and harvesting. All these may be conveniently set out in tabular form on a single sheet, which may also contain columns for recording the weight and value of the crop. Such a time-table, when considered in connexion with the season's weather record, forms a valuable guide for the gardener when he is planning his schemes of succession and intercropping, as it enables him to forecast, with tolerable accuracy, how long any particular crop will occupy the ground.
- (d) A section for records of weather observations, such as temperature, pressure, direction of wind, rainfall, condition of sky, and the connexion of weather with gardening processes and plant growth.
- (e) A section for occasional compositions on tillage and other operations, notes and drawings recording observation on soils, crops, weeds, insects, birds, etc., accounts of experiments carried out in connexion with the gardening, nature study and rural science lessons.

These and similar matters will afford proper subjects for notes. They should always be composed by the pupil himself and should never be copied from the blackboard.

25. **The Importance of Close and Accurate Observation.**—The teacher should encourage habits of close observation and correct inference :—

- (a) The pupils should habitually note for themselves such matters as the conditions of the soil and weather which are likely to favour or retard such operations as digging, sowing, thinning or transplanting ; differences in the rate or character of growth in plants under varying conditions of soil, moisture, aspect, sun and shade, etc. ; the effect of manures on the growth of plants and on the ultimate yield, etc.
- (b) They should be able to detect the first symptoms of attacks by such pests as the onion fly and onion mildew, the carrot fly, the turnip flea-beetle, the bean aphid and bean weevil, the gooseberry sawfly, the currant (magpie) moth, the black-currant-gall mite, slugs, wireworm (click-beetle), leather-jacket (crane-fly), etc., and they should know some of the means usually employed for their eradication.
- (c) Similarly, each boy should be able to say from his own observation how the young onion plant, pea, runner and dwarf bean first emerge from the soil, how peas and beans climb, and how such weeds as couch grass, convolvulus, groundsel, chickweed, field speedwell, dock, and dandelion spread so quickly and hence how best to eradicate them.

Many successful teachers make a practice of stopping the practical work a few minutes before the end of the lesson and gathering the class together for a short discussion on the work done and on any observations which have been made by the pupils or the teacher during the course of the lesson.

26. **Experimental Work.**—Reference has already been made in Section 3 above to the educational value of well-planned experiments in the school garden. This important part of the garden organisation for older boys calls for the exercise of sound judgment and careful consideration on the part of the teacher. In past years it has probably been the least successful section of school gardening.

An experiment should be something more than a reply to a vague curiosity as to what will happen if something is done in the garden not in accordance with the usual practice. It should arise out of previous observation or previous knowledge, the necessary conditions should be securable and there should be a careful elimination of "disturbing factors," or if they cannot be eliminated, they should be allowed for; the results should be produced in reasonable time and caution should be used in drawing general conclusions from particular instances.

Records of results should be kept in such a way that they are readily available for reference by future pupils.

The following notes indicate types of experiments which may be attempted by older children in gardening classes :—

- (a) Experiments to show the effect of the time of sowing on growth and yield. Thus, broad beans sown in autumn may be compared with others sown in spring, not only for productiveness, but also for immunity from the attacks of black aphid and bean weevil. Onions may be sown in open ground in the autumn or in frames in February or in the open in spring and the yields compared.
- (b) Experiments to show the effect of thinning and transplanting at various distances with a view to discovering the spacing which will produce the maximum yield from a measured area under certain conditions of soil and climate.
- (c) Experiments on depth of sowing, on the size and maturity of seeds.

- (d) Soil experiments to show the effect on the water content of soils, of soil-colour or surface mulching or soil temperature at different depths, or to show the effects of tillage and manuring on soil texture.
- (e) Manurial experiments in the garden are often misleading owing to the previous history and treatment of the plots, but as a general rule the action of applications of chemical manures in promoting quick growth at critical periods may be shown. Some of these experiments with manures should also be carried out in pots, where conditions are more easily controlled than in the open garden.
- (f) The fruit plot lends itself readily to experiments on the cropping results which follow different methods of pruning fruit trees and bushes or other variations which can be effected in regard to growth, precocity, and fruiting capacity by grafting or dwarfing, or on free-growing stocks. These fruit experiments are of a type in which results may be apparent over a period of several years and they are useful, therefore, as providing the need for careful permanent records which can be referred to by successive gardening classes.

The scheme of work for the last two years in Rural, Central or Senior Schools should pay increased attention to problems of rural science of this kind which may arise naturally out of the practical gardening on the one hand and out of the indoor science work on the other.

27. The Course should be Progressive.—(a) *The Practical Side.*—There are many different ways in which the pupils can be organised for working plots arranged on the single, dual, or common plot system, or on a combination of those systems. In all cases, however, it is most important that the instruction of the pupil in his first, second and third years should be distinctly progressive, both in the work he

does and in his responsibility for it. For instance, where the garden is large enough to allow of both a common plot and separate plots, the first-year boy may work as one of a class under direct supervision, passing in the second year to individual work with a plot of his own, and in the third year receiving special responsibility in connexion with the fruit plot, the seed bed, and the garden frame. Where the dual system prevails throughout, the boy may work in the first year as junior to an elder boy; in the second year he may work as senior to another boy; and in the third year he may be assigned special duties. Under the single plot system the boy cultivates his own piece of ground from the first, making mistakes, no doubt, but gaining experience, in his first year. In the second year he may grow more or less the same vegetables but will be expected to show what he has gained from his observations and the mistakes of the previous year. In the third year he may share responsibility for the seed beds and fruit garden. Where the whole garden is worked as a common plot, the boy will work in the first year as a learner under direct supervision; in the second year, having acquired some dexterity and self-reliance, he may be trusted occasionally to work alone; and in the third year he may be expected to assist and supervise a junior when necessary, and attend to special departments of the garden. Other arrangements may, of course, be adopted but, generally speaking, progress will be shown by improvement in workmanship, by more careful and varied experiment, by an increase in the number and variety of the vegetables cultivated, and by wider experience of the various methods of plant propagation.

(b) *The Scientific Aspect.*—As the older pupil acquires greater manual dexterity and increased proficiency in the cultivation of his garden, there should be a corresponding advance in his capacity for intelligent appreciation of the scientific principles which underlie his work and a desire to investigate them more closely. The field of inquiry is so wide and of so varied a character that the most enthusiastic teacher can only hope that a few well planned and carefully directed experiments carried out by his scholars will

encourage them to follow up their studies in similar directions on their own account. The teacher will no doubt select for special treatment and investigation those aspects of school gardening which appeal to him most strongly, or which he is best qualified to elucidate.

One teacher may decide to concentrate attention on the science of soil, examining the soil of his garden thoroughly with regard to its composition and texture, its capacity for retaining warmth and moisture, the degree of its capillarity under different conditions and treatment, and comparing it in these respects with other soils of the neighbourhood or in distant parts, at different seasons of the year.

Another may devote special attention to the problems of plant growth and nutrition, and build up a simple course of experimental study on such topics of interest as the conditions affecting germination, the measurement of growth in root and shoot, the absorption of water and nutrients from the soil, the ascent of the sap from root to leaf, the mechanism and extent of transpiration, the absorption of carbon-dioxide from the air and the building up of sugars and starch in the green leaf, the translocation of food materials and their storage in biennial garden vegetables, respiration, etc.

A third may prefer to make a detailed study of the life history and habits of some of the insects and birds with which the children are familiar in the garden.

If poultry or bees are kept in the school-garden, or elsewhere, they will provide abundant material for a very useful and interesting course of investigation into the simple principles of biology and hygiene which must always be the foundation of an intelligent understanding of poultry, husbandry or bee-craft.

The versatile teacher will probably be tempted on occasion to abandon his syllabus in order to deal at once with some problem arising out of the day's work in the garden. Whatever may be the course of study selected it should be pursued mainly by way of first-hand experiment and observation and should rarely, if ever, take the form of lectures.

28. The Economical Disposal of the Garden Produce.—Various methods are adopted for disposing of the produce grown in school gardens. In some areas the authority provides all requisites and the produce is given to the children ; in others, the whole or a portion of the produce is sold and the proceeds are paid over to the Authority ; occasionally the teacher provides seeds, manure, etc., and shares the fruit and vegetables with the children ; while in a few schools the teachers prefer to work the garden on co-operative lines, the children taking shares and dividing the profits among the shareholders after paying for seeds and manures and making a yearly payment to the Authority for rent and interest on the capital outlay for tools, toolhouse, etc.

In most localities it is possible to dispose of the produce (usually to the children at something less than current market rates) and in normal seasons the income is sufficient to pay working expenses and to leave a margin of profit, which is either credited to the school's garden account or expended in improving the equipment.

Wherever possible, there should always be definite business relations between the school garden and the Cookery Centre or class, the gardeners supplying vegetables and fruit for the practical cookery lessons. Even though the girls take no part in the actual gardening they should visit the garden at intervals in order to find out what vegetables are in season at different times of the year. In this way they will learn to appreciate the superiority of vegetables and fruit freshly gathered from the garden over those which have been handled and soiled in markets and shops.

Whatever may be the method of disposal, it cannot be too strongly urged that waste of the garden produce is an indication of defective organisation, carries with it a bad lesson for the pupils and should never be allowed.

29. Saving of Seeds.—It is very desirable that arrangements should be made for saving seeds of selected plants. Although the seeds themselves may sometimes be of small

value, it is desirable that the pupils should have the opportunity of studying the full life cycle of the plants they cultivate, and especially of the biennial vegetables. The most economical plan is to set aside for this purpose a patch in a corner of the garden and to plant one or two specimens of each plant which it is desired to study ; they should include the parsnip, carrot, turnip, beet, onion, leek, radish, celery, and one of each variety of brassicas, but not necessarily all at one time.

30. Competitions.—In places where exhibitions of the produce of the school gardens, at village shows and elsewhere, are organised, care should be taken to guard against the sacrifice of educational efficiency to the desire to win a prize or trophy.

III. GIRLS AND YOUNGER CHILDREN.

31. Gardening for Girls.—This chapter has been written mainly with reference to the work in gardening which can be done by boys over eleven years of age. It is, however, now generally recognised that school gardening may be just as suitable for older girls as it is for boys, and mixed classes and classes for girls are not infrequent. There is no necessity to lower the standards of work when the teaching extends to girls, and all that has been said above may be applied with equal force to girls, provided they are supplied with tools of a size and weight suitable to their strength and are spared any heavy labour for which they are physically unfit.

In some schools separate flower borders are laid out in front of the school or in the school garden and handed over to the girls who take great interest in looking after them.

32. Younger Children.—The desirability of giving the younger pupils an opportunity of doing work in or connected with the school garden should not be overlooked.

Pupils between eight and eleven years of age should not be expected to undertake heavy digging, but there is no reason why they should not take part in most of the other

gardening operations. They may divide up a previously dug plot into squares, and rake and level these into seed-beds for themselves. They may sow flower seeds (annuals), and weed, thin and transplant them. Where flower borders exist, it may be desirable to assign them, or part of them, to the younger pupils. Infants cannot be expected to take part in serious gardening, yet none are more interested in seeing plants grow and flower. The seeds which they sow should be such as germinate quickly, since they are not very patient of results. In the garden, hardy annuals are most suitable for them, and in the classroom a great deal may be done to interest them in the growth of seeds and bulbs, and plants in pots, pans, and boxes.

CHAPTER XIV.

PHYSICAL TRAINING AND HEALTH EDUCATION.

SUMMARY OF CONTENTS.

I. PHYSICAL TRAINING.

Section.

1. **Physical Training an Essential Part of the Work of the School.**
—Physical health and condition the basis on which mental education must be founded. The object of Physical Training to improve the physical condition. Educational effects of Physical Training. Some Physical Training to be given in all Schools.
2. **What "Physical Training" includes.**—Systematic physical exercises, games and athletic sports, swimming, dancing included. Why games are indispensable.
3. **The Habit of Good Posture.**—Its importance. How to secure it.
4. **Systematic Physical Exercises.**—Their necessity. Their recurrence at regular and frequent intervals. The Board's Syllabus of Physical Training.
5. **Games.**—The attainment of a satisfactory degree of skill and proficiency to be aimed at. A graded scheme important. Organised team games which can be played in a limited space. The educational value of games. All children should share in them. School matches not desirable if they mean the neglect of children who are not likely to find a place in the team. Children should not be exploited by outside agencies.

Section.

6. **Swimming.**
7. **Folk-Dancing.**—The physical aspect. Morris dances should not be taken before the age of 11 or 12.
8. **Clothing.**—The provision of suitable clothing and shoes.
9. **The Detection of Children who are Unfit for Physical Training.**—Need for watchfulness on the part of the teacher. Older girls should be taught by women, older boys by men teachers.
10. **Central Schools and Advanced Classes.**—A more advanced training necessary. Documents issued by the Board which give guidance. The Gymnasium, the Swedish system of gymnastics may do harm if inappropriately applied. It should not be used by untrained teachers.

II. HEALTH EDUCATION.

11. **The Importance of the Formation of Healthy Habits.**—The performance of healthy acts the main thing. For the older children, some theoretical instruction may supplement the regular practice of health.
12. **Mistakes to be avoided.**—Health not a separate subject of the curriculum. Healthy living to be regarded as a social obligation.

I. PHYSICAL TRAINING.

1. **Physical Training an Essential Part of the Work of the School.**—The school is immediately concerned with the bodily development as well as with intellectual progress and the formation of character. All these sides of the school work are indeed closely connected, and to neglect physical training is to sacrifice a valuable instrument for furthering intellectual and moral training. The object of physical training and the principles on which it should be conducted are discussed at length in the Board's "Syllabus of Physical Training for Schools." It is, therefore, unnecessary here to do more than recall the more salient points.

The physical health and condition of the child are the basis upon which all mental education must necessarily be founded. Not only is the physically unfit child likely to be below the average of mental capacity, but the actual

development of the brain is largely influenced and promoted by means of the motor activities. Accordingly the purpose and object of physical training in schools is not only to improve the physical condition of the children and to secure the full development of their health and strength, but also to aid in the development of their mental powers and in the formation of character. The physical effect includes the influence on the general physique and nutrition of the body, on the prevention and correction of faulty movement and attitude of the body, and on the development of the neuro-muscular system. The educational effect includes amongst other results the acquirement of habits of discipline, obedience, ready response and self-control. These results are not only of immense value to the individual, but since the effectiveness of what is done often depends upon the combined efforts and co-operation of a number of individuals, physical training plays an important part in producing and fostering a healthy public spirit. It is obvious that facilities for an all-round physical training are not available for every school. Not only competent teachers but suitable playgrounds and schoolroom accommodation, playing fields and swimming places, are absolutely necessary if physical training is to be thoroughly given. At the same time some definite instruction can and ought to be given in every school no matter how situated.

2. **What Physical Training includes.**—The term “Physical Training” as used here includes systematic physical exercises, games and athletic sports, swimming, dancing, and indeed all physical activities which help to produce a sound and healthy constitution. No one form is wholly sufficient in itself to produce the desired result; each is useful for its own particular effects, and needs to be supplemented and completed by the others. Systematic physical exercises are used for the purpose of securing certain physical effects, and these effects can be more or less exactly controlled. Games and sports cannot be readily modified to serve the immediate ends of physical development, and most games and sports, though of great value in securing a condition of health and fitness, tend to

a somewhat unequal development of the body, and require the corrective effects of systematic exercises. Games, however, pre-eminently have an educational as distinct from a purely physical value, and for this reason constitute an indispensable part of an all-round physical education. Systematic physical exercises again, by establishing the fundamental co-ordinations for controlled and graceful movement and posture, lay a foundation for folk and similar dances, the æsthetic value of which cannot be neglected without impoverishing the results of physical training. Reference is made later in this chapter to the importance of training in personal and domestic hygiene, etc.

3. The Habit of Good Posture.—Among the important contributions to personal hygiene which physical training has to make is the formation of the habit of good posture, a habit which can only be said to be established when the body framework and its supporting muscles are so formed and trained by suitable exercise that the child adopts at all times a good posture as being the most natural and least fatiguing for him. It has been truly said that with good posture the body is in a position of greatest efficiency, capable of the greatest activity of mind and body with the minimum expenditure of effort; with bad posture the machine is working with maximum friction and expenditure of energy. And again, bad posture breeds fatigue, and fatigue bad posture, and so a vicious circle is created. The need for close attention to the attitudes and postures of the children, not only during the physical training lessons but at all times, will be recognised. In this connexion, the advantage of occasional short periods of vigorous movement designed to stimulate circulation and respiration as a wholesome means of refreshment and to re-invigorate the supporting muscles of the body fatigued by immobility, should not be overlooked. No special skill on the part of the teacher is necessary for the conduct of exercises of this type, which should be performed several times daily, whenever possible with wide open windows, by the children standing up in their places in class.

4. **Systematic Physical Exercises.**—Systematic physical exercises are necessary in order to further the growth and harmonious development of the body. They form also the basis for all other bodily activities because they give in a marked degree the power of control over the body and the capacity to use the strength to the best advantage. If properly taught they form a most useful preliminary to, and accompaniment of, games and sports, especially those which require prolonged exertion. They enable the body to withstand considerable exertion without injurious results. They minimise the risk of overstrain, especially of the heart. They assist weak and under-developed children, naturally unfit to compete with their more vigorous companions, to catch up with them and to take their place in the playing field.

In order that physical training may have adequate and permanent effects it is necessary that it should be systematically conducted, and recur at regular and frequent intervals. The tables of exercises given in the Board's Syllabus of Physical Training, as applied in the larger Elementary Schools, and those included in the pamphlets on Physical Exercises for Rural Schools, have stood the test of experience. All that need be said of them is that their full value is obtained only when the teacher has made himself thoroughly familiar with the general principles underlying their construction and use, as set out in the explanatory chapters of the Syllabus.

5. **Games.**—It is perhaps scarcely necessary to remark that the possibilities in regard to games are severely restricted unless apparatus is available. The simple apparatus needed for games in the playground is usually not difficult to procure, and it is often possible to make some of it in the school. Unless the attainment of a satisfactory degree of skill and proficiency in the playing of games is aimed at, the play becomes of little worth, either for the purpose of training, or as a means of implanting that love of games which will encourage the children to turn to them

in after-life for rational and healthy recreation. As with the physical exercises, the games employed should be appropriate to the children's age and capabilities. To obtain the best results a graded scheme is required, beginning with the simple individual play of the youngest children and advancing, by the degree of skill and co-operation required, to the highly organised games, such as net-ball, cricket and football, suitable for the older scholars. Where the requisite facilities in the way of space, prepared pitches, etc., for these latter games are not available the children need not be denied the benefit and interest of organised team play, for there are several good games such as rounders, stoolball, long ball, etc., which demand and develop a considerable measure of skill, agility and team work, and which do not require much space or any specially prepared ground.

The educational value of games lies in cultivating a spirit of true and chivalrous sportmanship. Success in this direction has, of course, little to do with direct teaching ; it depends largely upon the general tone and atmosphere of the school. The teacher's own example is a most potent factor, and the more closely he is able to identify himself with the children's play interests, the more influence in this direction he will naturally have. The method of team work described in the pamphlet on the Team System (now incorporated as an Appendix in the Syllabus) will be found a valuable auxiliary in establishing a healthy public opinion on matters of conduct and sportmanship.

The games should have for their object the benefit of all the children in the school ; an organisation, such as a house system, which includes all and encourages each to take a part and to do his best according to his capacity, is therefore highly desirable. School teams and inter-school matches are useful and legitimate when they spring from a school organisation which includes all children, and are regarded as a test of the general training given in the school. They are neither legitimate nor desirable when the attention given to them is at the expense of those children who are not likely to find a place in the school team.

Every effort should be made to guard against any appearance of exploiting children by demonstrations and competitions, especially those organised by outside agencies.

6. **Swimming.**—Many teachers, both men and women, are successfully conducting the instructions of their pupils both in the land drill and in the water exercises; nor does it appear to be necessary for success that they should enter the water or even be able to swim themselves, although, of course, personal ability is usually an advantage. It is essential, however, that they should have a thorough knowledge of the swimming movements and of the methods of organising the instruction in the water. Where it is possible, there can be no doubt of the advantages of the teacher's keeping this part of the physical training in his own hands.

7. **Folk-Dancing.**—Folk-dancing is a free movement of the body, inspired and controlled by the rhythm and structure of a tune, and, because it adds to physical development the resources of music, it has its own peculiar place in a course of physical education. The teacher of folk-dancing must therefore be able to explain simply to a class the structure and character of the tune since on these will depend the movements of the dancers. Unless this is done and unless the dancers listen to the tune intelligently, the dancing becomes meaningless and mechanical and is a waste of time.

On the purely physical side it is essential to understand clearly and to impress on the class the invariable characteristics of folk-dance movement. The movement must be free, unaffected, of the body rather than of the legs, and in time with the music. The aim is to retain perfect poise and balance throughout the dance, however rapid the movement. The attainment of these qualities and the lightness on the feet at all times, which are the marks of a good folk-dancer, are the purely physical benefits to be derived from folk-dancing. To these must be added the mental control of the limbs, the exercise of the intelligence and the æsthetic training it affords.

The best place for folk-dancing is a big room with an unpolished wood floor and very good ventilation. Dancing on grass is more difficult and requires the music to be played slower. Dancing can also be done in the playground provided that it is not too dusty.

As soon as a child can run freely, he is fit to learn country dances. Morris dances involves considerable muscular strain and should not be taken before the age of 11 or 12. They can be performed by girls as well as by boys but are not really suited to the former. The same applies to sword dances except that these, while they require endurance, do not involve great muscular strain. Morris and sword dances are essentially team dances and should be danced accordingly by teams all of the same sex. Country dances are meant for both sexes and whenever possible should be danced by boys and girls together.

Folk-dances vary considerably in difficulty, and if a teacher is in doubt he should get expert advice on the type of dances suitable for his pupils. But the fundamentals of all the English folk-dances are the same and even in the most elementary of them neither the teacher nor the class should ever be content with less than the highest standard both of teaching and of performance.

8. Clothing.—Children are frequently hampered in the performance of the exercises, etc., by unsuitable clothing and shoes. The provision of clothing raises certain points of difficulty, but short of supplying special outfits, much may be done to assist the children to modify their clothes so as to render them sufficiently suitable for the purpose. In some areas, children have been encouraged and helped to obtain jerseys and other suitable garments, and also to make simple garments for themselves. School-made shoes have often proved very useful. The importance of proper shoes, not only for correct performance, but also for safety in such exercises as running and jumping, makes these part of the necessary equipment.

9. The Detection of Children who are Unfit for Physical Training.—Every teacher who conducts the physical

training should be able to decide what children are plainly unfit to undertake the full course which normal children can pursue without any risk to health. Children in whom there is nothing to indicate physical unfitness, sometimes show symptoms of breathlessness, or excessive fatigue after exercises, and should be excluded from physical training until a medical opinion has been obtained. The physical training of older girls should whenever possible be in the hands of women teachers, and that of older boys in the hands of men teachers.

10. Central Schools and Advanced Classes.—Schools which keep their scholars beyond the age of 14, need to give a more advanced training than that provided by the Board's Syllabus of Physical Training for the ordinary Elementary School course. In many cases gymnastic apparatus is available and permits of a broader and more varied training than is possible with free exercises alone. It may be employed with advantage if the teachers have the requisite knowledge. The fact that the normal course in these schools covers the critical period of transition from childhood to adolescence gives exceptional importance to the question of the right application of principles and the right use of opportunities in the teaching of physical exercises. To facilitate the work the Board are issuing two documents supplementary to their "Syllabus of Physical Training for Schools," namely, (a) "Reference Book of Gymnastic Training," which provides an extension of the syllabus work, with or without apparatus, beyond the age of 14, and, if apparatus is available, for a broadening of the apparatus exercises; (b) the "Supplement for Older Girls," which carries forward the Syllabus course for girls beyond the age of 14 and includes some apparatus exercises. It should be clearly understood that the "Syllabus of Physical Training for Schools" can be used quite suitably for all children below the age of 14, and that gymnastic apparatus should be used only by teachers who have had a suitable training in its employment; others should limit their teaching to the free exercises given in the Syllabus and in the two supplementary documents.

A gymnasium or room, such as an assembly hall, that can be provided with apparatus is desirable. If there is a gymnasium it should be reserved for physical exercises in order that special precautions may be taken to exclude or remove dust—a necessary measure where there is much active movement and respiration is more than ordinarily deep. Full use should, of course, be made of the means of ventilation to ensure that the gymnasium is kept abundantly supplied with fresh air.

Although in the hands of an efficient teacher the Swedish system of educational gymnastics, on which the Syllabus and its Supplements are based, is a powerful instrument for good, it can also be made an instrument for harm if inappropriately applied. The appropriate and effective teaching of physical exercises requires trained powers of observation on the part of the teacher and also the ability to apply the principles of the system to suit varying conditions. The untrained teacher should not attempt to teach any exercises with apparatus, but should content himself with the free exercises supplemented by gymnastic games, jumping and other recreative exercises. In Girls' Schools dancing, appropriately taught, is an extremely valuable form of physical exercise.

II. HEALTH EDUCATION.

II. The Importance of the Formation of Healthy Habits.—In view of the issue shortly of a special syllabus, dealing fully with training and instruction in hygiene,* it is not necessary here to do more than mention a few simple principles upon which its recommendations are based. Primarily, of course, health is a life to be lived and not a subject to be taught. Children are far more likely to acquire habits of healthy living through being trained to perform the acts upon which health depends than through merely receiving instruction which is mainly theoretical in character. Left to themselves, young children will not

* "Health Education," a syllabus with notes for the assistance of teachers in Public Elementary Schools.

perform these acts by the light of nature. They require to be initiated into the life of health. They should accordingly be required to perform certain acts as a matter of regular routine ; but, of course, no attempt should be made to explain to them the reasons for performing those acts. Older children, however, are entitled to have their intellectual curiosity satisfied and, consequently, in their case the practice of healthy habits should be reinforced by an appeal to intelligence and reason, though anything in the way of ambitious instruction in physiology should be avoided.

12. **Mistakes to be Avoided.**—Nothing indeed is more dangerous to moral and mental sincerity or more fatal to the formation of healthy habits and the realisation of the duty of health than the separation of theory from practice. Against two mistakes in particular it is necessary for the teacher to be on his guard. One mistake is to regard the treatment of health as a separate subject of the curriculum. The fact is that health instruction is naturally and intimately connected with physical training, housecraft, natural history, and above all biology. Only in a less degree has it intimate connexions with subjects like geography and history. There are few more interesting themes than the effect on the settlement and development of the Empire of the great discoveries in tropical medicine or the influence of great epidemics on the social, the industrial and the political progress of the nation. The other mistake is to divorce instruction in health from the habits of the individual and the community. The study and practice of health must form, from the first, part of the everyday life of the school. It should be connected in the mind of the child not only with duties to his comrades, his school and his home, but also with the welfare and happiness of the nation at large.

APPENDIX A.

BACKWARD CHILDREN.*

10. *Objectives.*—In a few cases the transference to a backward class will perhaps be merely temporary. Individual attention as regards teaching, attendance, social conditions and health may result in progress being so accelerated that eventually the child can be re-transferred to the ordinary class. These cases will be exceptional, and arise chiefly among the younger children.

In most cases children transferred to auxiliary classes will need to remain there for the rest of their elementary school career. Hence, where children enter such classes two or three years before leaving school, more than one special class should, if possible, be established. The ideal plan would perhaps comprise a "treble-track" system—a series of backward classes for slow children, a series of advanced classes for quick children, both parallel to the ordinary series of standards for children of ordinary average ability. To these different types of pupil different teaching-methods are appropriate. Cross-transference, however, from one series to another should not be excluded. Often a child's rate of mental development will profoundly change. But only in the largest senior departments will such a treble scheme of promotion system be practicable.

Of these the most intelligent should not be debarred from passing subsequently to a trade school or a central school

* The Board are indebted to the London County Council for permission to print this extract comprising Sections 10 and 11 of *Development Memorandum No. 1* (Report on provision for backward children, by Mr. Cyril Burt, M.A.), published by the London County Council, 1925. To be obtained from P. S. King & Son, Limited, 2 and 4 Great Smith Street, Westminster, S.W.1. Price 2d.

with an industrial bias. There are undoubtedly a few children whose specific educational ability is much below their manual or technical ability. Again, these cases are exceptional : intelligence manifesting itself to a high degree in one direction (e.g., handwork) is not *as a rule* accompanied by a very low degree of intelligence in other directions (e.g., academic subjects).

For the majority of these children, the ultimate objects in view should not be too ambitious. On an average, I estimate the progress of the backward child to be about three-quarters that of the normal. At the age of fourteen, therefore, his attainments will correspond only to standards IV and V. More than this should not, as a rule, be attempted as regards the formal subjects. Generally, however, the child's powers of reading will advance beyond his powers of spelling or calculation. Attention should therefore be concentrated upon making him a useful citizen and worker rather than an accurate scholar. He will be slow in comprehending the spoken and the printed word, slower still in the manipulation of written words and numbers, but not so backward in grasping things seen with eye or in constructing things made by hand. And it should be remembered that an excellent general education may still be imparted through these channels.

11. Curriculum and teaching methods.—With backward children less emphasis should be laid upon merely academic subjects and more stress upon physical, manual, concrete and utilitarian aspects.

(a) *Physical.*—Plenty of physical exercise should be introduced, particularly in the form of games organised and unorganised. As far as possible instruction should be given in the open air and every opportunity provided for educational visits, school journeys, and country holidays.

(b) *Manual.*—For backward children the curriculum should be predominantly manual. Special equipment should, if possible, be provided in the way of materials, apparatus and practical workrooms. These, however, are by no means indispensable. An enterprising teacher can

do much with materials which children themselves supply. It will doubtless be possible to work out a systematic and graded course of instruction in various media—paper, cardboard, clay, strip wood, string—as introductory—wood, dress materials, metal, leather, etc., for later work. Simple home industries involving handwork should be encouraged—the mending and making of ordinary household articles, including dressmaking, cookery and other subjects of domestic economy. Reading and writing, spelling and arithmetic should be taught very largely through these subjects.

(c) *Concrete*.—Quite apart from handicraft much instruction may still be conveyed in concrete form. Appeals to the ear should be supplemented or even supplanted by appeals to the eye and muscle sense—talking, printed and written work by seeing and doing. Madame Montessori has shown how the elements of the formal subjects may be acquired, and the senses and the muscles trained, by the provision of special apparatus. Many teachers have already carried these principles further by the invention of fresh devices. And much still remains to be done in this direction for older and backward children on lines already established for the young and the defective. In passing, it may be noted that while with the normal child a predominance of the “phonic” method appears to be the more effective in the teaching of reading, a predominance of the “look-and-say” method appears to be the more effective with backward children.

Pictures and models—often made by the older children—should be freely used for the instruction of the younger. The cinematograph probably has enormous possibilities for the instruction of this type of child. Where this is not possible, the ordinary projection lantern may be of service.

Nature study should occupy an important place in the curriculum. The child should be encouraged to take an intelligent interest not only in plants, animals, common substances, and the changes of weather, but also in the features, the activities, and the history of his immediate neighbourhood.

(d) *Industrial*.—For the older children particularly much of the teaching might have a definitely utilitarian aim, and be specifically adapted to their probable future employments. The aim of such work will be, of course, not so much to teach the child a trade, as to teach him to take an intelligent interest in his (or her) future work whether in or out of the home.

(e) *Cultural*.—Cultural subjects should not be neglected, but should be adapted to the children's interests, capabilities and special aptitudes. Many of them are unstable, and need more than a merely practical scheme of instruction to build up higher ideals of conduct and behaviour. For them training for leisure is of special moment. Often they are by no means backward in æsthetic appreciation. Poetry and English classics are often (but not always) beyond them. But they are often highly susceptible to music and drama, especially if they are allowed to take an active part. Probably the appreciation of good music has quite as much cultural value as the appreciation of good literature. And stories and selections from Wagner would be no more beyond their powers than stories and selections from Shakespeare. Rhythmic and eurhythmic exercises to music may do something to strengthen and co-ordinate mind and character as well as body. Tastes may be cultivated by giving the child opportunities for designing, especially with coloured media—e.g., stencilling, fancy needlework. Many have vivid imaginations—crude, but susceptible of cultivation. Drawing should figure largely. Often the child's own illustrations may supplement or be supplemented by attempts at written composition. For many, silent reading is easier than reading aloud; and where they cannot themselves read, they may still be read to with profit.

Although free self-expression upon paper is hindered by the mechanical difficulties of writing and spelling, these children are often capable of expressing themselves orally as well as through material media. Oral composition, particularly in the form of spontaneous acting and debates, should be freely encouraged. A special difficulty of these children appears to be reasoning. Instead, therefore, of

attempting to inculcate this through highly abstract activities, such as problem work in arithmetic—it might well be attempted by setting problems upon subjects well within the child's natural interests and powers. Such children are fascinated by detective stories ; and possibly a good training in reasoning could be provided by putting before them as simply as possible easy problems and data in terms of everyday life, and encouraging them to work out solutions by logical argument. A child who fails hopelessly at simple rule of three, will often guess the solution to a film drama or Sherlock Holmes story when the plot is only half unfolded.

In order to make room for the newer subjects and methods of instruction, much that is traditional in the ordinary curriculum may be sacrificed without scruple. Dispense with all that does not either (*a*) appeal to the natural interests of the child himself, or (*b*) bear closely upon his work or leisure in after life. The notion that useless or uninteresting exercises may yet prove valuable as a mental gymnastic should be abandoned. For example, the child need never be taught to spell words that he is never likely to use ; he need never be taught to work out sums dealing with measures or processes he is never likely to require.

In arranging the school time-table the old lines of demarcation between subject and subject may be dropped or cut across. There need be no English lesson for the child to learn English ; no arithmetic lesson for him to learn arithmetic. He will learn both incidentally in the course of instruction upon subjects which have a closer appeal. Throughout, both topics and methods of instruction should be correlated as closely as possible with the natural interests and activities that emerge at each stage of the child's development. As much use as possible should be made of the knowledge already gained by the child from out of school experiences—shops and their commodities, railways, roads, the commercial and industrial activities of the neighbourhood, the educational, postal, hospital, tram, bus,

police and fire brigade services, etc. In this way much of the general information which would be supplied in a better home, will be given at school.

Every scope should be allowed for independent work. Cross-classification and sectional teaching should be freely arranged. The peculiar aptitudes of each individual child should be given full scope to develop.

Discipline in such schools and classes should be as free as possible.



APPENDIX B.

THE LEAGUE OF NATIONS.

I. HISTORICAL BACKGROUND.

To ensure the proper handling of this subject it is desirable to repeat the remark made in Chapter III that the best treatment of history is only possible if the teacher knows a great deal more than he will ever have to teach. But the most that can be done here is to outline the general principles involved and indicate the main topics which teachers should study if they are to give the subject its proper historical setting and significance.

The establishment of the League of Nations was the direct result of the feeling which arose in every country during the Great War, especially in Great Britain and the United States, that, on the restoration of peace, some system or organisation must be set up to prevent the outbreak of a similar war in the future. The British Government appointed a Commission in 1917 to consider this problem, and on January 8, 1918, President Wilson declared publicly that at the peace—

“A general association of nations must be formed under specific covenants for the purpose of affording mutual guarantees of political independence and territorial integrity to great and small States alike.”

In the early stages of the Peace Conference a “Covenant” was drawn up, largely based on proposals put forward by the British representatives, and was incorporated as a first chapter in all the Treaties of Peace. The object of the Scheme was, first, to establish a permanent Conference of the nations which should regulate matters of common

interest and settle differences by a regular procedure of consultation, meditation, and arbitration ; and, secondly, in the last resort, to ensure joint action between the members of the League against any covenant-breaking State.

But these recent events do not really explain the League. The sense of unity and mutual obligation in the Western World and the idea of common organs for dealing with affairs of general interest are at least as old as the Roman Empire ; and Christianity gave new meaning and a wider scope to these conceptions. Hence the attempt during the Middle Ages to express the unity of Western Christendom in the persons of the Emperor as the representative of the Roman tradition of a common secular government and the Pope as the head of the religious community to which all belonged. But the Emperor was a head without a body ; his nominal Empire could not provide the peoples of Europe with a political organisation ; political unity had to be realised in narrower spheres before it could be expressed in the larger. The growth of national monarchies and national patriotism, with the increasing use of modern languages in place of Latin, while it weakened the traditional sense of European unity, was thus an essential stage in the history of European civilisation.

The development of nationalities tended to substitute war between nations for the conflicts of feudalism, and this tendency was accentuated when the ecclesiastical unity of Europe, already weakened by the struggles between the Papacy and the Empire and almost dissolved by the dissensions of the 15th Century, was shattered by the Reformation. But the nations of Europe, while struggling to organise themselves as independent units and to define their frontiers, were also always seeking to establish a settled European system. The conception towards which they worked was that of balance ; no nation was to be powerful enough to dominate Europe. The ideas of a " system " or " concert " of Europe and of a " balance of power " were not clearly defined until the 18th and 19th Centuries, but they can be discerned as motives of policy as

early as the days of Wolsey's diplomacy. And while statesmen were thus working out methods of common international action by diplomatic missions and conferences, the thinkers of Europe, from Grotius (1583-1645) onwards, were endeavouring to lay down the principles of an international law. These, therefore, are the main tendencies which have to be traced through the confused history of four centuries, viz. :—

- (i) the development of stable national units ;
- (ii) international diplomacy and agreements ;
- (iii) a system of international law.

Progress was slow. In the great treaties of Westphalia (1648), by which the Thirty Years' War was concluded, and of Utrecht (1713), at the end of the wars of Louis XIV, a division of the soil of Europe between governments was established and guaranteed. By this time the organisation and frontiers of the States of Western Europe had become so far defined as to make it possible for Great Britain, France, Holland, Spain and Austria to join in an alliance to maintain peace (1717 to 1720), but Central and Eastern Europe was weak and divided. The wars of the 18th Century, apart from their effects in America and India, were largely concerned with the emergence of Prussia as a new centre of national organisation in Germany and of Russia as a new force in the East. The idea of the balance of power had to be adjusted and extended to deal with these new factors ; and the partition of Poland (1772, 1793, 1795), together with the advance of Russia and Austria against the decaying Ottoman Empire showed how gravely the approximate balance hitherto secured in the West might be endangered by developments in the East.

Another new factor was introduced by the revolutionary and Napoleonic wars. Napoleon's renewed attempt to establish the dominion of a single Power was defeated, as the previous attempts of Charles V, Philip II and Louis XIV had been defeated, by the general revolt of European opinion against it ; but the struggles of this period led to a revival of national self-consciousness not only in Germany and in Italy, but also among the smaller nationalities of

Europe. When, therefore, after the settlement of 1814-15 statesmen set themselves again to construct the "Concert of Europe," the European family of nations was still in a state of flux. Five wars had to be fought before Germany and Italy emerged as united nations; four great ones before the Balkan nations secured their independence; and it was not until after the Great War that the principle of nationality received something like full recognition in the new map of Europe.

Nevertheless, the "Concert of Europe" made some progress during this period. In its original form, that of the Holy Alliance (1815), it broke down because it developed the tendency to intervene in the internal affairs of other States and became identified with a campaign against liberalism. More practicable was Castlereagh's idea of an alliance between the Great Powers, but from this also, after a series of conferences and congresses, the British Government felt obliged to withdraw, as it tended to become dominated by the policy of the Holy Alliance group. But the practice of summoning conferences to deal with disputes which threatened the general peace survived these failures, e.g., the coalition of England, France and Russia which determined the independence of Greece (1829); the Conference at London which settled the separation of Belgium and Holland (1839); the Congresses of Paris and Berlin and the London Conference which dealt with the problems of Eastern Europe in 1856, 1878 and 1913, and the Algeciras Conference (1906) which made the Moroccan settlement. These, however, were conferences specially summoned to meet emergencies or to conclude peace; there was no established organisation which could automatically bring a conference into being. None the less the Concert of Europe even in this rudimentary form succeeded in realising some great reforms, such as the suppression of the slave trade; it laid down the lines of a regular diplomatic and consular system for the conduct of ordinary international relations, and it developed for the joint administration of affairs of common interest such important organs as the Danube Commission (1856), the Postal Union (1874), and the

Sanitary Union (especially the conventions of 1892 and 1897 dealing with cholera and plague). Here we touch a subject of the greatest importance : the influence of Science in facilitating communication between nations and compelling them to consult and act together to meet common problems. An important development took place in 1884-5 during the Berlin Congress, summoned to deal with African problems, when the States directly interested in the colonisation and partition of Africa combined in adopting agreed measures for the control of the liquor traffic, the slave trade, and the traffic in arms in certain portions of the continent—the so-called “conventional basin” of the Congo—thus recognising the common duty of civilised states in dealing with uncivilised peoples.

Meanwhile, the need for a more effective method of ensuring peace was impressed on men's minds by the growth of naval and military armaments. Suggestions for a mutual agreement for the reduction of armaments had been made by the Czar as early as 1815, and the idea continued to be discussed throughout the century. At the same time the work begun by Grotius had reached a point where the conception of a law of nations had become familiar to all the peoples of Europe. It was inevitable, in view of the character of European society, that this law should in the first instance be mainly concerned with the rules of war and that even these rules should be worked out and applied by national courts, e.g., the prize courts of the Napoleonic and American Civil Wars. None the less, by the end of the 19th Century the science of international law had grown greatly in authority and scope, and in many matters its principles seemed to have become definite enough to permit of the establishment of an international tribunal in whose decisions all nations could have confidence. The two ideas of “limitation of armaments” and “international arbitration” led to the Hague Conferences of 1897 and 1907.

These Conferences form an important landmark. Attended as they were by nations from every continent, they constituted a recognition of the fact that, not only Europe, but the civilised world as a whole, was bound

together by a community of interests. The actual achievement of these Conferences was, however, small. A permanent Court of Arbitration was established at the Hague ; an alternative procedure for settling disputes by means of Courts of enquiry was worked out ; and treaties were drawn up laying down more definitely the rules of war. In the then existing condition of Europe nothing could be done for the limitation of armaments. In the language of the 18th Century, the balance of power in Europe was too unstable ; in the language of Mazzinian nationalism " the social idea could not be realised before the reorganisation of Europe was effected." The League of Nations is the attempt made by the European family of nations, as it has emerged from the Great War, to realise this balance or this social idea which for centuries different schools of thought have sought to express in different language, and statesmen, diplomatists, lawyers and idealists have worked towards in different ways.

This historical sketch has inevitably concerned itself mainly with European history, but during the last hundred years Europe has been profoundly affected by the political development of the New World and by the political resurgence of the Asiatic peoples. It would be impossible to deal at length with these factors, but before passing to a study of the League as it exists, reference must be made to what we in this country must regard as the most potent factor of all. Side by side with the growth in Europe of the principle of nationality another principle leading towards looser political organisation was being developed and tested elsewhere. At the end of the 18th Century American statesmen revived the idea of a federal union between sovereign states. The constitution of the United States was an attempt to work out on a grand scale the experiments in federalism made by Switzerland and the United Provinces of the Netherlands. Various forms of federal union had existed from early days in Europe, for instance in Germany and Northern Spain, but for the most part they had not been able to survive the centralising tendencies of European monarchies, and the history of the French Revolution

showed that European Republics were no more friendly to the idea. German unity was later established on a federal basis and examples of the same idea are found in the constitutions of the great South American Republics, but the United States remains the best example of this type of political organisation. Under the stress of modern conditions, however, the distinction between these federal unions and what are sometimes called "unitary" states is in many ways tending to become less marked. The British Empire has found itself obliged to attempt an experiment in political organisation on an even grander scale, but on still looser lines. This experiment has developed into the voluntary co-operative union which we know as the British "Commonwealth of Nations." The nature of that union has been described in the introductory statement prefixed to the Summary of Proceedings of the Imperial Conference of 1926 (Cmd. 2768), entitled "Status of Great Britain and the Dominions." This is by far the most novel and striking effort of political invention which has been attempted since the Reformation; it is the peculiar contribution which our country has made to the solution of the problem of international co-operation; and a careful study of it is essential to any proper understanding of that problem.

II. THE COVENANT.

1. How the League works.—The League of Nations, in many of its aspects, developed out of the movement for co-operation between States which had grown with the growth of modern Europe, but comparison of the older machinery for international action with the modern methods of Geneva brings out contrasts as well as affinities. Two innovations in particular are changing and modifying the practice of diplomacy under the League Covenant. One is continuity, the other publicity. The fact that Conferences now take place at regular intervals, and not, as often heretofore, under the shadow of impending crisis, and that a permanent organisation exists to carry out the decisions so taken, has entirely altered the atmosphere in which co-operation between States is fostered. It has also

greatly increased the practical possibilities of producing results. The publicity given to the proceedings of the Council and Assembly profoundly influences decisions, by bringing public opinion to bear upon the points at issue. From another point of view, too, it is important, for it now becomes incumbent on every citizen of a State Member of the League to appreciate intelligently the work done at Geneva.

The value of public discussion depends largely on the educated good sense of the public. League Membership carries perhaps some peculiar responsibilities for the British nation, which must be considered by everyone of us who goes to Geneva, literally or figuratively. The League has now more than fifty Member States, and each government represented must explain to the others its own point of view and its own national position. League agreements are made by harmonising national interests, never by suppressing them. Strong national consciousness, strong national governments, are, therefore, necessities for strong international co-operation in the sense envisaged by the Covenant of the League. We in Britain have these essentials. As a people, however, we have a special difficulty of our own, namely, a lack of experience of many problems which pre-occupy continental nations. This part of our island heritage is apt to make us too unconscious of what other countries are feeling and doing. We may take the problem of general limitation and reduction of armaments, as a case in point. This question must naturally present itself differently to States with land frontiers and compact territories, and to those with long sea-boards and responsibilities overseas.

The League of Nations works under a written Constitution, the Covenant. This consists of twenty-six Articles embodying the principles on which the League acts, and setting up the main organs through which it acts, namely, the Council, the Assembly, the Permanent Secretariat, certain of its great standing Committees, and the Court of International Justice. All the developments of its activity and its machinery which have been made since its establishment in 1920 derive from these. Thus some familiarity with the Covenant is an absolute essential to any study of

the League. The statesmanship displayed in the document is, perhaps, even more remarkable now, when it is read in the light of seven years' experience of its working, than it was in 1920, especially as regards the capacity of the Covenant to meet unforeseen events. Framing a constitution is a difficult task, even when the conditions to be met are more or less known. The League of Nations was launched in 1920, itself an experiment, on a world of which nothing could be predicted except that it would differ greatly from the world before the Great War. Too much definition of the League's functions might have wrecked the hopes of a League at all, at the beginning.

The idea of an undefined Constitution, adapting itself to circumstances as they arise, does not present so much difficulty to us, who have seen our own Commonwealth of British Nations shape itself successfully under those very conditions, as it does to the logical mind of the French and other Latin races. All points of view had to be considered, however, while the final draft of the Covenant was being hammered out during the Paris Peace Conference. Fortunately much thought had been given to it even before the Armistice, in America and Britain especially. This bore fruit, and the Covenant as we have it, is, to quote President Wilson's words, "not a strait-jacket, but a vehicle of life."

2. The Covenant.—Everyone should obtain a copy of the Covenant and read it for himself. Then he will never fall into the mistake of supposing that the League is founded on a vague jumble of aspirations for universal peace. The aims, or ideals, of the League are stated in the Covenant once in abstract form in the Preamble,* and that in the

* [THE PREAMBLE]

THE HIGH CONTRACTING PARTIES

In order to promote international co-operation and to achieve international peace and security

by the acceptance of obligations not to resort to war,

by the prescription of open, just and honourable relations between nations,

by the firm establishment of the understandings of international law as the actual rule of conduct among Governments, and

by the maintenance of justice and a scrupulous respect for all treaty obligations in the dealings of organised peoples with one another,

Agree to this Covenant of the League of Nations,

plainest possible language. The first seven Articles,† concerned with the machinery through which the League acts are precise and detailed.

† Article 1 [Membership]

* * * * *

Article 2 [Executive Machinery]

The action of the League under this Covenant shall be effected through the instrumentality of an Assembly and of a Council, with a permanent Secretariat.

Article 3 [Assembly]

The Assembly shall consist of Representatives of the Members of the League.

The Assembly shall meet at stated intervals and from time to time as occasion may require at the Seat of the League or at such other place as may be decided upon.

* * * * *

Article 4 [Council]

The Council shall consist of Representatives of the Principal Allied and Associated Powers, together with Representatives of four other Members of the League. These four Members of the League shall be selected by the Assembly from time to time in its discretion.

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The Council shall meet from time to time as occasion may require, and at least once a year, at the Seat of the League, or at such other place as may be decided upon.

* * * * *

[The number of Members of the Council selected by the Assembly was increased to six instead of four, by virtue of a resolution adopted by the Third Assembly, Sept. 25, 1922; and to nine instead of six, by virtue of a resolution adopted by the Seventh Assembly, Sept. 8, 1926.]

* * * * *

Article 5 [Voting and Procedure]

Except where otherwise expressly provided in this Covenant or by the terms of the present Treaty, decisions at any meeting of the Assembly or of the Council shall require the agreement of all the Members of the League represented at the meeting.

* * * * *

Article 6 [Secretariat]

The permanent Secretariat shall be established at the Seat of the League. The Secretariat shall comprise a Secretary-General and such secretaries and staff as may be required.

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Article 7 [Seat. Qualifications for Officials. Immunities]

* * * * *

Article Eight,* however, which broaches the subject of reduction of armaments, suddenly breaks difficult ground, and there is, so to speak, a change of pace in the very wording. The true relationship between the League and its Members is brought out very clearly in this Article. The League will impose nothing without the consent of the individual Governments. It provides for them, however, through the action of the Council, the power of considering their own position as part of the whole.

3. **Preservation of Peace.**—Article Ten,† which pledges League Members to protect each other against external attack, has perhaps caused more misgivings in some States, which have pledged themselves to be loyal League Members, than any other Article, for fear it should drag them into foreign wars against the interest and judgment of their people. It is best considered in connexion with the group of Articles‡ which succeed it which provide peaceful means of settling disputes before war breaks out. The sooner

* **Article 8 [Reduction of Armaments]**

The Members of the League recognise that the maintenance of peace requires the reduction of national armaments to the lowest point consistent with national safety and the enforcement by common action of international obligations.

The Council, taking account of the geographical situation and circumstances of each State, shall formulate plans for such reduction for the consideration and action of the several Governments.

Such plans shall be subject to reconsideration and revision at least every ten years.

After these plans shall have been adopted by the several Governments, the limits of armaments therein fixed shall not be exceeded without the concurrence of the Council.

The Members of the League agree that the manufacture by private enterprise of munitions and implements of war is open to grave objections. The Council shall advise how the evil effects attendant upon such manufacture can be prevented, due regard being had to the necessities of those Members of the League which are not able to manufacture the munitions and implements of war necessary for their safety.

The Members of the League undertake to interchange full and frank information as to the scale of their armaments, their military, naval and air programmes and the condition of such of their industries as are adaptable to war-like purposes.

† See the "Extracts from the Covenant" given below on page 19.

‡ See the "Extracts from the Covenant" given below on page 19.

the use of these means becomes universal and habitual, the sooner will Article Ten which provides against cases of aggression become a dead letter. In the meantime the duty of acting policeman against peace-breakers can never be imposed on any one State against its will by the League, for the Council, as Article Fifteen shows, recommends executive action only by a unanimous vote. The Great Powers, whose responsibilities for protecting weaker States against attack would obviously be very heavy, have permanent seats on the Council.

4. Locarno Treaties.—The measures to be taken against peace-breakers are left pretty vague in Articles Ten and Sixteen of the Covenant. Since the Covenant was written, however, the division of responsibilities is being mapped out by particular agreements concluded between States with special reference to the League. By the Locarno Treaties (to take an example specially affecting ourselves) we have defined certain of our obligations. We have pledged ourselves to come to the aid of France, Germany or Belgium if any of those three is invaded by any other. We remain free to exercise judgment if invasions of territory takes place in eastern Europe.

The past seven years have given a varied choice of illustrations of the practical effectiveness of the Articles for prevention of war.

5. Settlement of Greek-Bulgarian Dispute.—One incident that occurred in 1925 is a particularly complete example of League methods. Note particularly the dates which show the rapidity with which action can be taken.

On October 19, 1925, firing broke out between the sentries posted in a desolate region on the Greek-Bulgarian frontier in Macedonia. Evidence conflicts as to who began it, but once begun it continued for days, until Greek artillery and aeroplanes were in action, and Greek troops were shelling a town five miles inside Bulgaria. At the same time Greece accused the Bulgarians of shooting a Greek sentry, and presented an ultimatum calling for apology and indemnity. At this point Bulgaria appealed to the

League by telegram, which reached Geneva at six a.m. on October 23.

Sir Eric Drummond, the Secretary-General of the League, telephoned to M. Briand, in Paris, he being at the time President of the League Council. Briand instantly summoned an emergency meeting of the Council, and telegraphed to the Greek and Bulgarian Governments reminding them of their pledges under the League Covenant to submit their dispute for peaceful settlement.

On October 26 the Council met in Paris, and adopted unanimously a Resolution presented by Sir Austen Chamberlain calling on Greece and Bulgaria to withdraw their troops behind their own frontiers within sixty hours. Representatives of those two Governments were present at the Council, and on the 27th they were empowered to agree to the Council's direction. They further asked the League to investigate the origins of the quarrel.

By October 30 it was reported from Macedonia that the withdrawal was complete. The Council's Commission proceeded at once to the Balkans, and its Report was ready in time for the next ordinary Council Meeting held at Geneva in December. The decisions then taken were faithfully carried out. Greece paid an indemnity to Bulgaria for moral and material damage. A Commission made up of neutrals with one Greek and one Bulgarian and a League Chairman was appointed to prevent such "incidents" developing into serious disputes in this wild region.

This incident gives strong support to the argument that the League affords the nations the finest opportunity ever offered for cultivating the good sense and good feeling that are in the long run the best preventative of war. It is interesting, too, to look at the Greek-Bulgarian crisis in its chronological place in the series of disputes that have been brought before the League. Read in that context it will be seen that, broadly speaking, the power of the League to bring about satisfactory settlements is increasing, and that this is largely due to the increasing co-operation of all parties concerned in the matter of submitting quarrels for decision, and acquiescing in decisions when made.

6. **Registration and Review of Treaties.**—Articles Eighteen and Nineteen* abolish Secret Treaties and provide means for revising Treaties which have ceased to apply to existing conditions.

7. **Mandates.** Another outstanding Article is Twenty-two, that interesting experiment in practical idealism, on which the Mandate system is founded. The idea of a Mandate is not entirely new in its moral foundation in the sense of responsibility on the part of the administering government for the interests and welfare of the natives. British Colonial administration has been increasingly animated by the spirit of trusteeship for many years past. Attempts to formulate the idea are also found in some pre-war international Treaties.

The complete novelty in the Covenant plan is the system by which the State holding a Mandate gives an account of its stewardship to the League through yearly reports.

The history of the Mandates themselves, however, is naturally developing somewhat apart from that of the League, since the League supervises, without itself governing, the territories. The record is very variegated, as it must be since it describes the work of several civilised Powers, to one or other of whom is allotted the charge of peoples who differ as much in their stage of culture as do the Arabs and Jews of Palestine from the savages of New Guinea. No more interesting episodes than those connected with Mandates are to be read in the literature that is growing up round League work.

* Article 18 [Registration and Publication of all Treaties]

Every treaty or international engagement entered into hereafter by any Member of the League shall be forthwith registered with the Secretariat and shall as soon as possible be published by it. No such treaty or international engagement shall be binding until so registered.

Article 19 [Review of Treaties]

The Assembly may from time to time advise the reconsideration by Members of the League of treaties which have become inapplicable and the consideration of international conditions whose continuance might endanger the peace of the world.

8. **Human Welfare.**—Article Twenty-three* follows very naturally after Article Twenty-two. To many minds its constructive paragraphs for improving human health and happiness are the most interesting in the Covenant. Certainly the remarkable growth of activity that has sprung from them already seems to show that the times were ripe for them.

Their first fruits were the Conventions for suppression of the traffic in women and children (1921) and for control of the traffic in opium and dangerous drugs (1925). Out of the preparatory work for the first of these sprang an off-shoot, interesting in itself, and a sample of how development comes on this humanitarian side of the League's activity. This is the Child Welfare work. The Standing Committee of experts charged with collecting the facts on which the White Slave Convention was framed, was divided

* Article 23 [Social Activities]

Subject to and in accordance with the provisions of international conventions existing or hereafter to be agreed upon, the Members of the League :

(a) will endeavour to secure and maintain fair and humane conditions of labour for men, women, and children, both in their own countries and in all countries to which their commercial and industrial relations extend, and for that purpose will establish and maintain the necessary international organisations ;

(b) undertake to secure just treatment of the native inhabitants of territories under their control ;

(c) will entrust the League with the general supervision over the execution of agreements with regard to the traffic in women and children, and the traffic in opium and other dangerous drugs ;

(d) will entrust the League with the general supervision of the trade in arms and ammunition with the countries in which the control of this traffic is necessary in the common interest ;

(e) will make provision to secure and maintain freedom of communications and of transit and equitable treatment for the commerce of all Members of the League. In this connection, the special necessities of the regions devastated during the war of 1914-1918 shall be borne in mind ;

(f) will endeavour to take steps in matters of international concern for the prevention and control of disease.

Article 24 [International Bureaux]

There shall be placed under the direction of the League all international bureaux already established by general treaties of the parties to such treaties consent.

* * * * *

Article 25 [Promotion of Red Cross]

* * * * *

into two sections in 1924, one concerning itself with such matters as raising the standard of legislation for protection of children up to the level of the most enlightened States.

Any student of the League curious to understand the technique of its work on the social side should study the details of discussions of these questions. They present a lively picture of the process of harmonising various points of view that go to the make-up of sound international agreements. The zeal of experts, the discretion of governments, the cold criticism of the supervisors of League finance all play their necessary parts.

Article Twenty-three has been in a way the starting point from which the League has launched out to meet various kinds of emergency. The repatriation of great numbers of war prisoners from Central Europe, the relief and re-settlement of numbers of war refugees in the Levant, are examples of problems which private charity and even grants from single governments could not cope with alone. These episodes abound in picturesque stories, but none appeal more to the imagination than the continuous work going on for controlling the spread of disease. Here the value of international co-operation shows in the clearest light.

To take an instance: the advance of an epidemic across the world is now, thanks to the League's organised Intelligence Service, signalled and combatted as quickly as the march of visible enemies. Assume that the Port Authority in Valparaiso reports the discovery of a plague-infected rat on an incoming ship. The news is instantly cabled to Geneva, whence it is re-issued, with other relevant information from elsewhere, and broadcasted in code from the powerful French Station, St. Assise. For the Far East the news is issued from a League Bureau at Singapore. Practically every country in the world that possesses regular health statistical service is now linked up with this system.

Health and Welfare work is contributing more than its direct share to the process of binding League Members together by mutual interests, and producing a habit of mind in international relationships which will in time go far in reducing the strain that arises in times of political crisis.

9. **European Reconstruction.**—This is no attempt at a complete account of the League's work. The flexibility of its Constitution has enabled it to undertake some tasks which were quite unforeseen when its Covenant was framed. The most important of these are, perhaps, in the sphere of finance and economics. After the War Austria was on the verge of bankruptcy, and it seemed as if her whole administration must crash, and her people famish, and that a new threat of disorder in the heart of Europe might put the whole peace-settlement in the melting pot again. The Austrian Government appealed in despair to the League. From that appeal was evolved the idea of a loan, with its expenditure controlled by a League Commissioner, which has been applied since in Hungary and Greece and Bulgaria under different circumstances.

10. **Protection of Minorities.**—The economist finds so much to interest him in the details of this experiment that it seems absurd to dismiss it with a word. This is even truer of the League's Protection of Minorities, of which likewise no mention is made in the Covenant, which was framed before the series of Treaties that brought Poland, Czecho-Slovakia and the Baltic States into existence, and gave new frontiers and new populations to the old States of Central Europe. These Treaties confer upon every citizen in these countries the right to equal treatment in matters of religion, language and civic rights.

In accepting this responsibility the League put itself in a position where it may be forced to express an opinion on the domestic legislation of States, which in every other sphere it scrupulously avoids doing. The Minority Guarantees are, nevertheless, in harmony with the general tendency of modern thought to recognise the value in national life of the traditions and culture of racial minorities.

This incomplete outline of the League's many and various undertakings has not filled in the lights and shades of its actual achievements and occasional failures. These must be read elsewhere. Any mere sketch of the League as it is to-day is almost bound to be written in a tone of optimism,

for in spite of set-backs and unfruitful experiments, study of these, its early years, reveals it becoming more and more interwoven with the foreign policy of all governments.

EXTRACTS FROM THE COVENANT.

Article 10 [Guarantees against Aggression]

The Members of the League undertake to respect and preserve as against external aggression the territorial integrity and existing political independence of all Members of the League. In case of any such aggression or in case of any threat or danger of such aggression the Council shall advise upon the means by which this obligation shall be fulfilled.

Article 11 [Action in Case of War or Danger of War]

Any war or threat of war, whether immediately affecting any of the Members of the League or not, is hereby declared a matter of concern to the whole League, and the League shall take any action that may be deemed wise and effectual to safeguard the peace of nations. In case any such emergency should arise the Secretary-General shall on the request of any Member of the League forthwith summon a meeting of the Council.

It is also declared to be the friendly right of each Member of the League to bring to the attention of the Assembly or of the Council any circumstance whatever affecting international relations which threatens to disturb international peace or the good understanding between nations upon which peace depends.

Article 12 [Disputes to be Submitted to Arbitration or Inquiry]

The Members of the League agree that, if there should arise between them any dispute likely to lead to a rupture, they will submit the matter either to arbitration or judicial settlement or to inquiry by the Council and they agree in no case to resort to war until three months after the award by the arbitrators or the judicial decision, or the report by the Council.

In any case under this Article, the award of the arbitrators or the judicial decision shall be made within a reasonable time, and the report of the Council shall be made within six months after the submission of the dispute.

Article 13 [Arbitration of Disputes]

The Members of the League agree that, whenever any dispute shall arise between them which they recognise to be suitable for submission to arbitration or judicial settlement, and which cannot be satisfactorily settled by diplomacy, they will submit the whole subject-matter to arbitration or judicial settlement.

Disputes as to the interpretation of a treaty, as to any question of international law, as to the existence of any fact which, if established, would constitute a breach of any international obligation, or as to

the extent and nature of the reparation to be made for any such breach, are declared to be among those which are generally suitable for submission to arbitration or judicial settlement.

For the consideration of any such dispute, the court to which the case is referred shall be the Permanent Court of International Justice, established in accordance with Article 14, or any tribunal agreed on by the parties to the dispute or stipulated in any convention existing between them.

The Members of the League agree that they will carry out in full good faith any award or decision that may be rendered, and that they will not resort to war against any Member of the League that complies therewith. In the event of any failure to carry out such an award or decision, the Council shall propose what steps should be taken to give effect thereto.

Article 14 [Permanent Court of International Justice]

The Council shall formulate and submit to the Members of the League for adoption plans for the establishment of a Permanent Court of International Justice. The Court shall be competent to hear and determine any dispute of an international character which the parties thereto submit to it. The Court may also give an advisory opinion upon any dispute or question referred to it by the Council or by the Assembly.

Article 15 [Disputes not submitted to Arbitration]

If there should arise between Members of the League any dispute likely to lead to a rupture, which is not submitted to arbitration or judicial settlement in accordance with Article 13, the Members of the League agree that they will submit the matter to the Council. Any party to the dispute may effect such submission by giving notice of the existence of the dispute to the Secretary-General, who will make all necessary arrangements for a full investigation and consideration thereof.

For this purpose the parties to the dispute will communicate to the Secretary-General, as promptly as possible, statements of their case, with all the relevant facts and papers, and the Council may forthwith direct the publication thereof.

The Council shall endeavour to effect a settlement of the dispute and if such efforts are successful, a statement shall be made public giving such facts and explanations regarding the dispute and the terms of settlement thereof as the Council may deem appropriate.

If the dispute is not thus settled, the Council either unanimously or by a majority vote shall make and publish a report containing a statement of the facts of the dispute and the recommendations which are deemed just and proper in regard thereto.

Any Member of the League represented on the Council may make public a statement of the facts of the dispute and of its conclusions regarding the same.

If the report by the Council is unanimously agreed to by the members thereof other than the Representatives of one or more of the parties to the dispute, the Members of the League agree that they will not go to war with any party to the dispute which complies with the recommendations of the report.

If the Council fails to reach a report which is unanimously agreed to by the members thereof, other than the Representatives of one or more of the parties to the dispute, the Members of the League reserve to themselves the right to take such action as they shall consider necessary for the maintenance of right and justice.

If the dispute between the parties is claimed by one of them, and is found by the Council, to arise out of a matter which by international law is solely within the domestic jurisdiction of that party, the Council shall so report, and shall make no recommendation as to its settlement.

The Council may in any case under this Article refer the dispute to the Assembly. The dispute shall be so referred at the request of either party to the dispute, provided that such request be made within fourteen days after the submission of the dispute to the Council.

In any case referred to the Assembly, all the provisions of this Article and of Article 12 relating to the action and powers of the Council shall apply to the action and powers of the Assembly, provided that a report made by the Assembly, if concurred in by the Representatives of those Members of the League represented on the Council and of a majority of the other Members of the League, exclusive in each case of the Representatives of the parties to the dispute, shall have the same force as a report by the Council concurred in by all the members thereof other than the Representatives of one or more of the parties to the dispute.

Article 16 [“ Sanctions ” of the League]

Should any Member of the League resort to war in disregard of its covenants under Article 12, 13, or 15, it shall *ipso facto* be deemed to have committed an act of war against all other Members of the League, which hereby undertake immediately to subject it to the severance of all trade or financial relations, the prohibition of all intercourse between their nationals and the nationals of the covenant-breaking State, and the prevention of all financial, commercial or personal intercourse between the nationals of the covenant-breaking State and the nationals of any other State, whether a Member of the League or not.

It shall be the duty of the Council in such case to recommend to the several Governments concerned what effective military, naval or air force the Members of the League shall severally contribute to the armed forces to be used to protect the covenants of the League.

The Members of the League agree, further, that they will mutually support one another in the financial and economic measures which

are taken under this Article, in order to minimise the loss and inconvenience resulting from the above measures, and that they will mutually support one another in resisting any special measures aimed at one of their number by the covenant-breaking State, and that they will take the necessary steps to afford passage through their territory to the forces of any of the Members of the League which are co-operating to protect the covenants of the League.

Any Member of the League which has violated any covenant of the League may be declared to be no longer a Member of the League by a vote of the Council concurred in by the Representatives of all the other Members of the League represented thereon.

Article 17 [Disputes with Non-Members]

* * * * *

Article 22 [Mandatories, Control of Colonies and Territories]

To those colonies and territories which as a consequence of the late war have ceased to be under the sovereignty of the States which formerly governed them and which are inhabited by peoples not yet able to stand by themselves under the strenuous conditions of the modern world, there should be applied the principle that the well-being and development of such peoples form a sacred trust of civilisation and that securities for the performance of this trust should be embodied in this Covenant.

The best method of giving practical effect to this principle is that the tutelage of such peoples should be entrusted to advanced nations who by reason of their resources, their experience or their geographical position can best undertake this responsibility, and who are willing to accept it, and that this tutelage should be exercised by them as Mandatories on behalf of the League.

The character of the mandate must differ according to the stage of the development of the people, the geographical situation of the territory, its economic conditions and other similar circumstances.

Certain communities formerly belonging to the Turkish Empire have reached a stage of development where their existence as independent nations can be provisionally recognised subject to the rendering of administrative advice and assistance by a Mandatory until such time as they are able to stand alone. The wishes of these communities must be a principal consideration in the selection of the Mandatory.

Other peoples, especially those of Central Africa, are at such a stage that the Mandatory must be responsible for the administration of the territory under conditions which will guarantee freedom of conscience and religion, subject only to the maintenance of public order and morals, the prohibition of abuses such as the slave trade, the arms traffic and the liquor traffic, and the prevention of the establishment of fortifications or military and naval bases and of

military training of the natives for other than police purposes and the defence of territory, and will also secure equal opportunities for the trade and commerce of other Members of the League.

There are territories, such as South-West Africa and certain of the South Pacific Islands, which, owing to the sparseness of their population, or their small size, or their remoteness from the centres of civilisation, or their geographical contiguity to the territory of the Mandatory, and other circumstances, can be best administered under the laws of the Mandatory as integral portions of its territory, subject to the safeguards above-mentioned in the interests of the indigenous population.

In every case of mandate, the Mandatory shall render to the Council an annual report in reference to the territory committed to its charge.

The degree of authority, control, or administration to be exercised by the Mandatory shall, if not previously agreed upon by the Members of the League, be explicitly defined in each case by the council.

A permanent Commission shall be constituted to receive and examine the annual reports of the Mandatories and to advise the Council on all matters relating to the observance of the mandates.

III. LIST OF BOOKS ON THE LEAGUE OF NATIONS AND ITS WORK FOR FURTHER STUDY.

A.—GENERAL.

i.

1. Butler, Sir Geoffrey—*Handbook to the League of Nations*. Second edition, 1925. (Longmans), 10s. 6d.
2. Rappard, W. E.—*International Relations as viewed from Geneva*, 1925. (Yale University Press), 11s. 6d.
3. Fanshawe, Maurice—*Reconstruction. Five years of work of the League of Nations*, 1925. (Allen & Unwin), 5s. (See No. 10 below.)
4. Harris, H. Wilson—*What the League of Nations is*. Second edition, 1927. (Allen & Unwin), 2s. 6d.
5. Pollock, Sir Frederick—*The League of Nations*. Second edition. (Stevens & Sons, Ltd.), 10s. (For more advanced students.)

ii. Publications of the Secretariat of the League, Geneva :—

6. *Illustrated Album of the League of Nations*, 1925. 4s.
7. *The League of Nations: A Survey*. Second edition, 1926. 1s.

- iii. Publications of the League of Nations Union, 15, Grosvenor Crescent, London, S.W.1 :—
8. *The Covenant of the League of Nations*. Pamphlet No. 7. Ninth edition, 1926. 1d.
 9. *The Covenant Explained*, by Frederick Whelen, with a Preface by Gilbert Murray. Pamphlet No. 34. Fourth edition, 1927. 9d.
 10. *What the League has done*. Pamphlet No. 195. (This keeps No. 3 above up-to-date.) 3d.
 11. *The League of Nations. What it is and What it does*. Pamphlet No. 161. 2d.

B.—PARTICULAR ACTIVITIES.

i.

12. *The League*. Pamphlet No. 203. 3d.
(An Address by the Right Hon. Sir Austen Chamberlain, K.G., M.P., on the occasion of his installation as Lord Rector of Glasgow University, November 2, 1926.)
13. White, Freda—*Mandates*, 1926. (J. Cape), 3s. 6d.

ii. Publications of the League of Nations Union :—

14. *Health*. Pamphlet No. 174. 3d.
15. *Disarmament*. (Facts about the League's work.) Pamphlet No. 210. 3d.
16. *Humanitarian Activities of the League*. Pamphlet No. 82a. 9d.
17. *Political Activities of the League*. Pamphlet No. 83a. 1s.
18. *Geneva*, 1924. Pamphlet No. 164. 9d.
19. *Geneva*, 1925. Pamphlet No. 184. 9d.
20. *Geneva*, 1926. Pamphlet No. 199. 9d.

(The three last-named pamphlets contain an account of what happened at Geneva at each of the Sessions of the Assembly, by H. Wilson Harris.)

The Government accept no responsibility for any of the statements in the advertisements appearing in this publication, and the inclusion of any particular advertisement is no guarantee that the goods advertised therein have received official approval.

INDEX.

(This Index is not intended to be exhaustive. Reference should also be made to the *Summary of Contents* at the head of each Chapter.)

	A.	<i>Pages.</i>
Adolescent, The Education of the (Report of the Consultative Committee)		4, 60
Advanced instruction		57
Algebra		208, 211
Amenities, school		24, 26
Anthologies		82, 90
“Appreciation”		
of Art		272, 305, 340
of Literature		85, 87
of Music		262
Arithmetic	169 and 39, 40, 55, 62, 142, 149,	388
Articulation		73
Athletic sports		413
B.		
Backward children		34, 422
Bible, the English of		68, 89
“Bird and Tree” Competition		234
C.		
Central Schools	19, 56, 60, 213, 236, 346, 380,	419
Character training		10
Classification		33, 36, 49
Code (1904-1926)		3, 8
Collective answering		72
Composition, English		99
“Concentric plan” in History		135
“Concrete” methods in Arithmetic		180
Conferences, staff		30
Consultative Committee, Report of (on The Education of the Adolescent)		4, 60
“Conversation lessons”		70
Cookery	372, 374, 376,	383
Cookery Centre and Mid-day Meals		25

	<i>Pages.</i>
Correction	
of Arithmetic	177
of Composition	110
Counting	184
Cross-classification	37

D.

Dates in History	55, 137
Decoration of classrooms	27
Decorative stitchery	356, 362
Departmental Committee's Report (on The Teaching of English in England)	69, 79, 85
Design	302, 339, 340
Dialect	74
Dictation	104
Discipline	11, 19, 72
Dominions, Oversea	123, 162
Dramatic literature	87
Dramatisation	71, 119
Drawing	267 and 18, 55, 337, 340, 351, 388

E.

Ear training	246
Educational visits	122, 168, 340
"Education weeks"	22
Emotions, training of	17
Empire, British	123, 132, 144, 153, 162, 168
English	63 and 40
Examinations, internal	60
Expression	
in Drawing	272
in Reading	79, 80

F.

Folk-dancing	240, 414, 417
----------------------	---------------

G.

Games	20, 26, 413, 415
Gardening	385 and 42, 235, 347
Geography	140 and 40, 62, 68, 126
Geometry	204, 212
Grammar	98
Gramophone	262
Graphs	209, 212
Gymnastics	400

H.

Pages.

Handwork	327 and 47, 52, 55, 119, 142, 164, 182, 228, 230, 302, 355, 388
Handwriting	.. .. . 311
Head teacher	.. .. . 12, 29, 31, 59, 60
Health	.. .. . 22, 23, 56, 58, 412, 420
History	.. .. . 112 and 56, 68, 142, 334
Hobbies	.. .. . 16, 23, 344, 351
Home and school	.. .. . 9, 22, 23
Homework	.. .. . 23
"House" system	.. .. . 20
Housecraft	.. .. . 368 and 236
Housewifery	.. .. . 375
Hygiene	.. .. . 38, 40, 420

I.

Imperial Institute	.. .. . 168
"Individual work" (see also "Private Study")	51, 53, 57, 58, 86, 95, 101, 103, 109, 113, 117, 152, 222, 231, 296, 333, 344, 377, 390, 406
Interest and drudgery	.. .. . 17

K.

Knitting 359
----------	-------------

L.

Language study	.. .. . 96
Lantern-slides	.. .. . 146, 160
Laundry work	.. .. . 375
League of Nations	.. .. . 125, 428
Letter-writing	.. .. . 107
Libraries:—	
Public	.. .. . 92, 93, 117, 162
School	.. .. . 92, 95, 96, 162
Life-saving	.. .. . 26
Literature	.. .. . 15, 84, 85, 86, 88
Local geography	.. .. . 145, 156
Local history	.. .. . 122

M.

Map-reading	.. .. . 155
Mathematics, elementary	.. .. . 169 and 58
Meals at school	.. .. . 29, 46
Melody training	.. .. . 261

	<i>Pages.</i>
Mensuration	202
Monitors	19, 59
Moral training	9, 18, 20
Morris dances	418
Music	237 and 18, 38

N.

Nature rambles	148, 221
Nature, the Study of .. .. .	.. 217 and 142, 341, 387, 388
Needlework	353 and 303, 351
Novels	68, 86, 139
Number	184
Nursery Schools and classes	43

O.

"Open days"	22
Ordnance Survey Maps	149, 156, 165
Organisation	32
Outdoor work	
in Arithmetic	207
in Geography	149
in the Study of Nature	221, 235

P.

"Parents' days" .. .. .	.. 17, 23
Part-singing	257
"Periodic plan" in History	123
Perspective, teaching of	298
Phonetics	76
Physical training	411 and 26
Pictures	27, 28, 29, 71, 138, 146
Poetry .. .. .	.. 18, 81, 89, 90
Practical room	225, 335, 348, 366
Prefects .. .. .	.. 19, 59
Print-script	315
Private study	16, 40, 57, 67, 135, 152, 161
Probationary year	41
Promotion .. .. .	.. 33, 34
Pronunciation .. .. .	.. 66, 73
Punctuation	80

R.

Pages.

Reading	13, 15, 51, 67, 68, 69, 76, 136, 152, 160, 219,	350, 384, 388, 393
Recitation	81, 82, 83, 90, 91	
Records, of individual children		36, 62
Regional surveys		156, 157
Religious teaching		21, 68
Reports to parents		23
Rural schools	40, 41, 347, 379, 384, 391	

S.

Savings Associations		20
Scale-drawing		203
School journeys		167
Science	217 and 68,	224, 235
" Script-writing "		315
Shakespeare for children		88, 90
Sight-reading in music		246
" Silent reading "		85, 86
Simultaneous reading		77
Singing		237
Social history		122
Sol-fa notation		247
Solid geometry		213
Songs, choice of		253
Specialisation	38, 134,	143
Speech-training	47, 51, 69,	70
Spelling		103
Staff notation	247, 248,	252
Stages of school life		42
" Standard English "		74, 75
Swimming		26, 417

T.

Team work		19, 416
Teams, school		26, 416
Temperance		20
Thrift		20
Time-charts		137
Trigonometry		212

V.

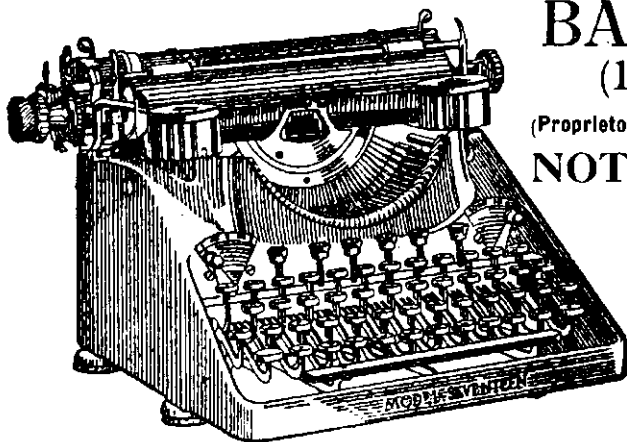
Verse-writing		92
Vocabulary		72, 76
Voice-training		242
Voluntary helpers		21

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