

SOCIAL EFFICIENCY

INDIA'S GREATEST NEED

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INTRODUCTION.

THIS book on Social Efficiency should be of service, alike to the studious reader and to the practically minded citizen; since its subject appeals to both, and its treatment also. For while arising from the "Efficiency Movement," now for a good many years past so prominent in discussion, and so frequent in application in the United States, it carries out the theory more boldly and more extensively, and so seeks to apply it more widely and more deeply. All this too with relation to Indian conditions; for these include Indian possibilities.

That there is ample room for such a book, and corresponding need of it, and in the two-fold directions here indicated, none surely will deny. Be the reader of optimistic or pessimistic temperament, or temper, he may learn either way from this strenuous meliorist, whom a varied life-experience has taught to combine freshness of observation, freedom of speculative

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thought, and range of social knowledge, and the technical efficiency of the engineer, as well as of the man of science. Here in fact we have an example, still too rare, of an incipient social process: the emergence of the engineer with all his practicality of aims, beyond the customary plane of the mechanical and physical sciences to which engineers are still supposed to be limited, and with disastrous social results. For here these aims are humanised, by the added resources and outlooks of the sciences of life and mind, of society and morals.

Mr. Pherwani tells me that the bulk of this book was written before he joined me in teaching here: and indeed it is this attitude of mind, with its unusual harmony of scientific and practical interests, which has brought us kept us together as colleagues. For our very twinned subjects, of Sociology and Civics, although among the most widely comprehensive of all in the academic world, since seek to attain the concrete interpretation of social and life, of which philosophy seeks the abstract, are by no means merely academic in their

current sense, of withdrawal into the study or library, and away from everyday life and practice. On the contrary, it is this social life which we students of Sociology seek to understand: it is this practice, which, as students and workers in Civics, we seek to advance.

Of course our author ranges widely, and fixes his efficiency standards high: but his subject compels this. Thus sharply to have outlined so many efficiency schemes, is itself a stimulus to further endeavour: for here, even more than in ordinary economic life, a large and well defined demand is the best of stimulus towards supply. So in the later volume which this leads us to expect from him, we shall see justifications of this bold treatment, this height of aim, since substantiated by experimental evidence from far and near, and thus, ere long, from India, as well as from America.

In short then here is a good general statement of the needs and possibilities of increased efficiency, and not only for society in general but for India in particular. It is by a keen student of affairs, a direct critic and an

emphatic writer; and it may safely be predicted that his own continued efficiency-studies and endeavours will bear fruit increasingly, in meeting the needs he so outspokenly states. So as to ways and means of efficiency-increase, he will yet give us not only a wealth of concrete and suggestive examples, but also, I doubt not, of initiatives of his own.

DEPARTMENT OF SOCIOLOGY
AND CIVICS, UNIVERSITY
OF BOMBAY.

11th February, 1923

PATRICK GEDDES.

PREFACE.

INDIA lies prostrate through poverty, ignorance, disorganisation, and imperfect assimilation of her varied population elements. Her well wishers want to see her organised, united, prosperous, educated and noble. This can only be achieved through associated effort, of all men of good will, used in the most efficient manner. It is my object to enlist the sympathy of all true well wishers of India, towards a practical programme of regional and civic reconstruction, through raising the population quality, through pointing out the peaceful conquests open to associated and enlightened endeavour. The subject is vast, the effort has been inadequate. The suggestions put forth are illustrative not exhaustive. It will be for enlightened associated endeavour to solve the problems set forth.

Whence shall India recruit energy for this reconstruction? From men and women of all

ages and occupations ; but, to start with, from a revival of the ancient Ashram of Vanaprasth, the dedication of the third quarter of one's life to civic and social effort. After the householder's stage, the man of mature experience devoted his time to the welfare of his city. Retiring to the quiet precincts of his village or city, he worked for the welfare of all the families in the village or city, and not only for his own. Thus the ancient scheme of Hindu Life provided a definite period for such larger activity, undertaken with a view to benefit not only one's own narrow domestic circle but the wider social whole, the families surrounding and sustaining one's own family. If the programme be revived, and every one reserve a portion of his life for such social welfare work, society would benefit through the constructive genius of many of the workers of this type, and the helpfulness of all.

At this most critical juncture, India needs the gospel of Social Efficiency. We the people of India are athirst for improving our national status. But national status cannot be improved

without understanding the social forces that are at work, and that have made and kept us, what and where we are. The problem of social amelioration is here tackled from the point of view of scientific management, and the results of the deliberations set forth from the standpoint of social engineering.

Civilisation means for me, a series of conquests. A civilised people, means a people who have solved the problems of conquest of bread, shelter, clothing, of ignorance and disease, of discord, and outside attack.

In India we have the further difficulty that the various elements of the population are imperfectly assimilated. To hasten the assimilation of the different elements, and organise them for the various peaceful conquests within each region, is the problem of Social Efficiency. On the basis of a common birthplace, a common place of residence and common needs, if we can induce common efforts, or closer and more effective co-operation, for the fulfilment of those needs, we shall have increased our social efficiency.

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applying efficiency principles to social problems, I had cherished before I met him. It was suggested to me by Aronovici's 'Social Survey,' and Richmond's 'Social Diagnosis.' But under Prof. Geddes, I got the opportunity to develop my ideas in the light of his teachings as well. To Emerson then I owe introduction to Efficiency, and to Prof Geddes increased interest in Society; to the two then, this combination towards Social Efficiency.

I am painfully aware of the many shortcomings in this book. The chapters were written at various times, in the course of the last three years. There is thus some repetition and some break of unity. The problems are vast and will need a lifetime to work out. I have therefore simply set forth first suggestions, and appealed to local investigation in every case. Some of the important factors for measuring and increasing our social efficiency have been suggested in the barest outline. I invite the attention of abler hands, clearer heads, and nobler hearts, to carry forward whatever suggestions appeal to them, and work

towards a better fed, better clothed, better housed, better educated, happier and nobler India, with her vast human resources utilized for the better service of Humanity. To the readers of this book then I entrust this great and glorious mission.

DEPARTMENT OF SOCIOLOGY
AND CIVICS, UNIVERSITY
OF BOMBAY.
11th February 1943.

S. N. PHERWANI, M.A.,

SOCIAL EFFICIENCY

CHAPTER I

WHAT IS SOCIETY

Our subject is Social Efficiency. The two terms that need to be defined before we take up the subject proper are Social and Efficiency. Social means relating to men, united in Society. Society in its turn is a word derived from *societas*, *socius* a companion. In Webster's abridged edition it is given the following five meanings. 1. Fellowship or company, 2. Number of persons associated for a common interest, 3. Community or partnership, 4. Civilized body of man-kind 5. Upper class of a community. It thus covers all meanings from companionship of two to a community of millions even to human society as a whole if sufficiently welded to pursue common ends. "A scientific conception of society must" in the words of Giddings "lie within the boundaries fixed by these

familiar meanings, but it must seize upon and make explicit the essential fact, whatever it may be, that is the common element in all social relations."

As regards the essential nature of society there are several competing conceptions enunciated by sociologists. There is in the first place the organic conception of society started by Comte developed in detail by Spencer. Spencer conceived society as an organism with its productive sustaining system, with its commercial distributive system, and legal, religious political and regulative systems. He conceived of society as an 'organized whole composed of definitely arranged parts'. He had more or less a static and structural conception of society. Schäffle who developed the idea further conceived of the social organism in its functional aspect. He conceived of society as 'an organic whole composed of parts working together to achieve results'. Lilienfeld carried the analogy to its utmost logical limits comparing even social diseases to organic diseases etc.

Other sociologists however have found fault with this conception of society as a physiological organism. They say society is at bottom a psychological process. Among these also there are various schools. Durkheim and Le Bon conceive of the process as one based on mass impression or suggestion, a universal hypnosis. Tarde thought that in imitation lay the key to the understanding of the process. Giddings is responsible for the 'instinct theory' of society, making society the outcome of like and unlike, equal and unequal response to differing and common stimuli leading on one side to concerted volition and on the other to individuation and differentiation. There is also the rationalistic conception of society as the outcome of the free agreement among individuals, a voluntary contract to combat the evils of natural state of mankind.

Thus there has been a gradual movement from static and physiological and structural conception of society to a dynamic, psychological and functional conception of society.

And latterly society has been conceived not so much in terms of being as of becoming, not so much a finished product as an unending process. The social process has been conceived by Ratzenhofer as a 'process of adjustment of varying interests by conflict and co-operation' and may we not add by compromise.

This much at least is clear that a society means a group of men holding together on a particular patch of territory, coming or thrust into contact, which aided by communication results in conflict, co-operation or compromise, superiority or submission of the different units. That the group may exist, the universal interest of sustenance has to be satisfied. Round about the interest in sustenance and superiority are reconciled the different subordinate and conflicting interests. The characteristics of society may be summed up in the words of Hayes as 'a number of people in such communication, as to set up a relation of reciprocal causation and so to establish among them a union in common activity'. The essentials are, common unifying activities, continuously

growing out of causal inter-relationship, between activities of communicating associates.'

Societies may therefore best be classified by the nature of the bond that holds them together. The first bonds to operate and evolve are naturally the land bond and blood bond, togetherness in space and territory, common descent. A village community, a town, a city, a presidency, an empire have the basic territorial bond on which sooner or later a political bond is super-imposed. Societies based on descent go all the way from the families, hordes, tribes, to different races of mankind. Societies held together by kinship are called by Giddings 'sympathetic' societies. Sometimes the common bond is a language and so we have linguistic society; sometimes it is religion and so we have religious societies. Sometimes the bond is like-temperament or participation in like pleasures and pursuits and we have a 'congenial' society. Sometimes the elements in a society are unequal, a small minority setting up as rulers without reference to the will of the rest and we have a 'despotic'

form of society. Sometimes the ruling class has been in existence for a time long enough to gain reverence from classes and gain their willing allegiance and we have the 'authoritarian' type. Sometimes the groups work in secret supremacy and we have 'the conspiratorial' kind of society. There are societies that come together by agreement 'contractual societies,' societies that co-operate for industrial purposes, "industrial societies and groups," societies that are combined by common ideals, 'idealistic societies!'

We have all these sorts of groups and societies in the comprehensive political society and sometimes the political society itself is of one or other of these types. Often the state, the most comprehensive group is thus a 'union of disunions'; a 'harmony of discords, a reconciliation of conflicting group, interests.' All these different types of societies exist round us. Social efficiency would deal with all these groups and would see how far each group does its group work effectively. Comprehensively, social efficiency would mean

investigating the effectiveness of the highest all embracing national, state or community group in pursuit of the ends for which the group exists.

CHAPTER II

DEFINITIONS OF EFFICIENCY

Efficiency or scientific management has been variously described and defined. As its dictionary meaning indicates, the science of efficiency is the science of being effective. Webster defines Efficiency as "the power to produce desired results". So it is the science of result getting, of success in achievement.

Efficiency was first introduced to the world under the name of Scientific Management. Fredrick Winslow Taylor, the father and founder of Efficiency in his evidence before Prof. Hoxie stated "Scientific management is a system devised by industrial engineers, for subserving the common purpose of employers, workmen and society at large, through an elimination of avoidable wastes, the general improvement of the processes and methods of production and the just and scientific distribution of the product". "The new management" writes he 'aims at securing

the maximum prosperity of the employer, coupled with maximum prosperity for the employed and benefit to the consumer". In short the object of Scientific management is to maximise the output, minimise the cost per unit of production and thus to get lower cost, give higher wages and cheaper commodities.

Let us now look at the definition given by another pioneer of efficiency, one who has brought Efficiency to the door of the greatest number of young men, Harrington Emerson. In his evidence before Mr. Hoxie, Emerson declared as follows. 'Scientific management and efficiency is the subjecting of material, equipment and personal, including managers, to the highest economic laws in order that the universe through human ability may give more of its inexhaustible riches to 'humanity.' In his excellent 'Home Course in Personal Efficiency' the same author gives an extremely lucid definition of Efficiency, "Efficiency" he writes 'is the mental and physical ability to find and take the best easiest and quickest way to the desirable things of life.'

Hence Efficiency is the science of producing results in the best easiest and quickest ways. Thus Durel defines Efficiency as 'the property of being efficient; that is of producing results in excess of expenditure. The degree of efficiency of a process is the ratio of the available result of the process to the expenditure.'

The same idea is put in a negative form by Gilbreth in his 'Psychology of management' where he equates efficiency with 'determining and installing methods of least waste.'

Edward Earle Purinton, the author of 'Business of Life', also named 'Efficient Living' defines 'Efficiency as the power of doing one's best and utmost in the shortest time and easiest way to the satisfaction of all concerned.'

It will be seen that Efficiency was first introduced to the world as Scientific management. It arose from the factory. Its aim was better and greater production, at lower unit costs but higher wages, in the end benefitting the employer by higher profits, the labourer by

higher wages and the consumer by cheaper commodities. This is the industrial phase of efficiency. But it was soon found that the principles of scientific management are applicable equally well to self management. Every man manages himself and if he does so scientifically, he would be able to get better and greater output of desirable things from himself and with less effort in the shortest time securing at the same time maximum of satisfaction for himself and others. So efficiency has next been applied to this field of personal life and personal endeavour. Such a title as 'the business' of life is significant of the transition. But Efficiency has not stopped there, ideas and principles of efficiency are applicable to all fields of human endeavour. These principles have been applied to domestic work. We have an excellent book on scientific management in the home viz 'Household Engineering' by Mrs. Christine Fredrick.

The writer as a student of Sociology has found that the principles of scientific management can with equal benefit be applied in the

field of social endeavour that there can be a science of social management as well as home management, that efficiency can be operative in the social field as well as the industrial and personal. It will therefore be the aim of this book to treat of efficiency in its social aspect.

The following words from Taylor will clearly show that he too had such development in view. The words are worth repeated reading. Thus in his 'Principles of Scientific Management,' we have :

"We can see our forests vanishing, our water power going to waste, our soil carried by floods into the sea and end of our iron and coal in sight- but the larger waste of human effort due to awkward blundering or inefficient motions are less visible, even vaguely appreciated.

"This paper has been written ;—

1. To point out the greater loss which the whole country is suffering through inefficiency in almost all our daily acts.

2. To convince that remedy for inefficiency lies in more systematic management

rather than in searching for unusual or extraordinary men.

3. To prove that the best management is a true science resting upon clearly defined laws, rules and principles as a foundation. And further to show that the fundamental principles of scientific management are applicable to all kinds of human activities, from our simplest individual acts to the work of greater corporations which call for the most elaborate cooperation and briefly through a series of illustration to convince the reader that wherever these principles are correctly applied results must follow which are truly astounding."

"It will be clear that the same principles can be applied with equal force to all social activities: to the management of our homes; the management of our farms, the management of the business of our tradesmen over large and small, of our churches, our philanthropic institutions, our universities and our Government Departments."

CHAPTER III

EMERSONS PRINCIPLES OF EFFICIENCY

By far the most exhaustive and detailed analysis of the principles of efficiency is that given by Harrington Emerson. He is said to have analysed over 25,000 instances of inefficiencies bettered. 'I began' he says 'to collect examples of inefficiencies that had been bettered, I read many of the technical and scientific periodicals of the United States and Europe. I made clippings from the magazines and daily papers. I collected over 25,000 illustrations covering all of human activity.'

When we had classified the 25,000 samples of deviation from standards and the 25,000 different remedies proposed, we found that all the remedies could be gathered under a few heads, that all the 'fall downs' were due to the neglect of a few precautions.

Efficiency as we have already stated is the physical and mental ability to find and take the best, easiest, quickest ways to the desirable things in life.

The practical principles of Efficiency lay down that;—

To find and take the best easiest and quickest ways to doing your daily work or getting at the desirable things of life,

1. You must make use of immediate reliable adequate and permanent *records*.

2. You must make a definite *plan* for all you desire and want to do.

3. You must make *schedules* based upon standards for employment of your time, materials equipment and energy.

4. You must make a habit of *despatching* all operations.

5. You must make a rule to *standardise* all conditions.

6. You must make a study of *standardising* all operations.

7. You must study and follow *written standard practice*.

The Ethical Principles of Efficiency are:—

To find and take the best, easiest and quickest ways to the desirable things of life,

8. You must have clear, definite *ideals* of what those things are.

9. You must measure and test every means used for attaining achieving and acquiring them by the standard of *common sense*.

10. You must seek and follow *competent counsel*.

11. You must *discipline* yourself into active, harmony with the principles, laws and rules governing these things.

12. You must give and demand the *fair deal*.

13. You must eagerly desire, earnestly seek and instantly demand for yourself your *efficiency reward*.

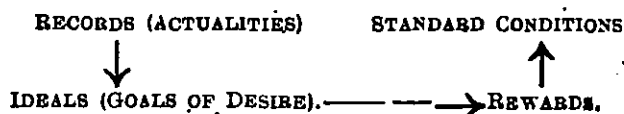
Analysing these principles further, we find the practical principles of efficiency really require us to '*Plan our work and work our plan*': Without a plan, a man is not able to do his best and utmost work; similarly also a factory and society working without planning or planning and not working out the plan is sure to remain backward. But the plan must be based on accurate investigations of facts

on adequate and reliable records. The plan must be itemised or detailed, else, it will not be workable.

The Ethical and Psychical principles of Efficiency require that the ideal or goal must be defined, must be eagerly desired and that we must be fair to ourselves and others, make the best use of our wits and get help from other people's and then regulate our conduct into conformity with the ideals.

All these principles as Emerson tells are independent and inter-dependent. It will be advantageous to group them in various ways in order to be thoroughly at home in them. The following appears to be a helpful correlated co-ordination. Individuals as well as societies, when they mature beyond the instinctive stage, begin by desiring to *have* something, to *do* something, to *be* something. To get a clear idea of what they want to have, or want to do, or want to be should be their first endeavour in conscious evolution. Unfortunately these goals of endeavour are often left vague and confused, and hence

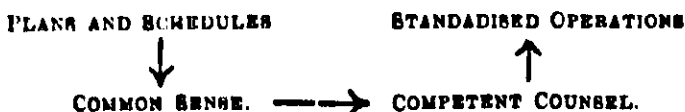
results social and individual inefficiency. To have clear and definite ideals, based on reliable and adequate information, of actualities of the situations in which individuals and societies find themselves, becomes the first essential of efficiency. To keep these ideals constantly before the mind, to dwell on these rewards would inspire the enthusiasm, and release the efforts necessary for the acquirement, or achievement, or attainment of what we want to have, to do, or to be. This alone can lead us to transform the actual into the ideal or standard conditions the ideal of our endeavour. It will thus be seen that



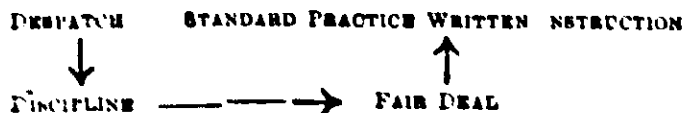
the four principles of Records, Ideals, Rewards and Standard Conditions are interrelated.

Similarly with another effort of thought, we should plan and schedule in advance, on the strength of our accurate information and in conformity with our ideal, we should test our plan by common sense, we should consult those who are most competent in that line

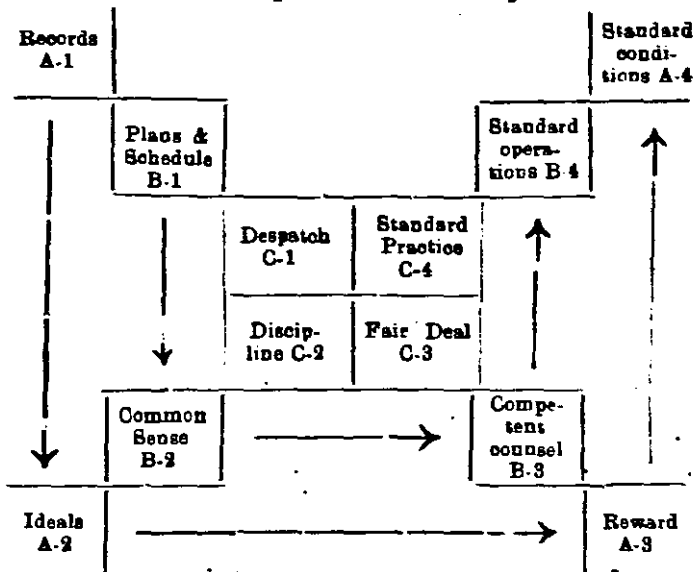
and find out the best, easiest and quickest motions or operations, necessary for accomplishing our ends. This reveals an interrelationship between the following four principles.



A further effort at self training is required. We have to make our will firm and do as we have planned, to dispatch betimes the operations, we have to punish ourselves if we fail to do so, and thus discipline ourselves to conform to the requirements of our goal. We have to take care that we arouse no opposition by unfair dealing, but enlist co-operation of others by fair deal, and finally, we have to record all these efforts in clear terms so as to save ourselves from similar efforts in the future. Thus the four following principles are found to be capable of co-ordination.



Putting these three co-ordinations together, we get four co-ordinated triads covering Emerson's Principles of Efficiency.



A further inter-relation is possible. Thus the principles of plans and despatch can be applied to records as well and we shall have plan of records and despatch of records etc., similarly the principles of records and despatch can be applied to plan and so on. All these principles are thus independent and inter-dependent, correlated and capable of co-ordination.

A statement of these thirteen principles in the form of a jingle will be helpful to the memory. We quote:—

“ Records, plans, and schedules true,

Despatched with correlations :

Standardized conditions, too,

And standard operations.

Standard practice taught in writing,

High ideals and common sense,

Competent guides their counsel citing,

Discipline wrought for recompense.

A deal that's fair for all alive,

With justice your own interest, guard

With courage and persistence strive,

For your Efficiency reward.”

CHAPTER IV SOCIAL AIMS

The aim of society is to protect and perfect the individual and group. The individual as well as the group to which he belongs, exist in environment from which they draw their sustenance and support, but which at the same time is indifferent if not hostile to their self-existence and self-expression. The individuals seek the help of group strength for mutual protection and perfection. The group depends on the individuals for its solidarity and superior adaptation to surroundings, indifferent or adverse.

Within the group and outside *i.e.*, between the group and physical environments and between the group and other groups, there is the principle of mutuality in operation. The environment resists yet supports also. The competing groups resist yet support to some extent, and the secret of life is to seek more and more support from environment and yet to protect itself more and more from

adverse influences of the self-same environment. The aim of society is then to adapt itself and its members to its environment, material, sub-human and human.

Every society seems to pursue the triple aim of provision, protection and transfer of tradition. It aims to provide food, shelter clothing and education, comforts, conveniences and luxuries so far as it can get them. It thus develops in the words of Herbert Spencer a sustaining system, a distributive system or briefly put an economic system in its triple aspect of consumption, distribution and production of commodities and services.

But beyond the intergroup, 'material activity and its developed system of commerce which brings it in friendly or competitive touch with other producing groups, a society aims a protection from other societies protection from aggression and exploitation and protection from the restraints and limitations, which it experiences from them. This protective function of society so far as outside societies are concerned gives rise to a political

system, foreign services, foreign departments, armies and navies. But the protection of the group and the individual is not only to be from outside groups but from conflicting interests within the group, from destructive human elements within the groups. This leads to development of police, legal and judicial systems. Further the group and individual have to be protected from wild animals as well as minute invisible bacteria, from disease and dirt and everything which breeds disease. So society develops a sanitary and medical system. All these systems—the political, judicial and sanitary fulfill the aim of protection of the individual and group, their existence and their rights.

Along with provision and protection and aiding these materially goes the aim of transfer of tradition, the imparting of social heritage to the social units. A society perpetuates itself by renewal of its dying aged and adult population through series of younger generations. Parents pass away leaving their children to carry on the

social task, the children in turn grow and become parents, mature decay and die, and so the march of ages continues. The aged and adults are anxious to transmit their accumulated store of treasured truth to the younger generation so that they may not begin a-new like the savage. This gives rise to transmission of tradition through religious systems, educational systems, ceremonial customs, through language and proverbs.

The educational, ceremonial, ethical and religious systems, exist for transference of tradition for imparting of ideals of individual and group perfection.

These in brief are the aims or ends for which societies are formed, and for the conscious or unconscious fulfilment of which they continue. There are so many channels through which human effort flows to satisfy human needs. Some societies bungle and some do better, some carry on these aims consciously, deliberately and with utmost economy of efforts and some unconsciously, irrationally, with waste of effort. Everywhere there may

be detected waste of effort if we compare the actual achievement with the reasonably attainable maximum achievement possible through the efforts expended. Societies are not cent-per-cent efficient. Social efficiency is low and may be increased by investigation and forethought, by better plans and execution, by better means and methods. The best, easiest and quickest ways of getting to these desirable ends have to be found out by observation and comparison and next by conscious experiment and invention. That is what we shall attempt in the following chapters.

It will perhaps be profitable to give parallel statements from other authors regarding social aims, ends, objects and purposes.

“Social welfare” writes Prof. Giddings “is the sum of the ends for which society exists. The final tests of the Efficiency of social organization are to be looked for, in the results which the organization brings about, in the political, the juristic and intellectual and the moral life of the community, and speically in

the development of an improving type of human personality.

“ These ends for which society exists are of two great classes, the proximate and the ultimate.

“ Proximate ends ; Public utilities.—The immediate results of efficient social organization are certain general conditions of well-being, in which all members of the community share, or may share if they like, and which, though external to the individual personality, are yet necessary to its perfection and happiness. They include the security of life and of possessions, which is maintained by the political system ; the liberty and justice, which are maintained by the legal system ; the economic opportunity and material well-being, which are created and maintained by the economic systems ; cultural opportunity, knowledge and fearlessness created and maintained by the cultural system. The proximate ends collectively we may call Public Utilities.

* Giddings's *Description and Historical Sociology*, p. 523 et seq.

“ Ultimate Ends; Social Personalities.— Public utilities themselves, however, are means to an ultimate end. We value them and strive to augment them, because they serve the individual life. Life itself is the ultimate social end, but not life irrespective of form or quality. It is life in its higher developments, especially its moral and intellectual developments, that society creates and perfects. It creates the higher from the lower types by multiplying helpful variations, and subsequently selecting the best results. It slowly shapes a social nature, or personality adapted to social co-operation and enjoyment. The social personality the moral, intellectual, and social man, the highest product of evolution is the ultimate end of the social organization.”

Prof. Bristol in his ‘ Social Adaptation.’ (Page 329). writes as follows :

“ As applied to social problems and conditions the theory of adaptation and the philosophy of social personalism would seem to call for emphasis on the following factors in associational life.

I. Production of material goods as the basis of life, growth and cultural development.

II. The elimination of waste land, waste labour and the waste of natural resources.

III. Efficient consumption ; interpreted in terms of production (Carver), of surplus energy (Patten) or of social well-being ;

IV. Education for social efficiency which will include ;

(a) reorganization of the family as the educational as well as sociological unit ;

(b) the acquirement of such knowledge, skill and training on the part of each individual as will fit him best for the place he can best fill in the industrial system or in the supply of human needs, with such direction and encouragement as will tend to relative equality of income because of relative equality in social service rendered.

(c) the acquirement of such knowledge and training as will result in social adaptation and co-operation.

(d) the development of personality and individuality with self-control, self-direction

and prophetic vision to see the line of action that will make for individual and social well-being ;

(e) the attainment of that religious insight and experience which will link the human life with the Eternal Source of life, thus making for increased energy and social unity.

(f) the above elements unified and energized with the educational ideals of adaptation and social exemplification.

V. Social control.

(a) to secure efficient race-stock and to regulate population.

(b) to deal with the anti-social, the social laggards.

(c) to prevent that competition which experience shows to be uneconomic or detrimental to well-being.

(d) to encourage such co-operation as promises to be socially advantageous, and

(e) to secure a more just distribution of wealth.

The individual who would succeed in life must adapt himself to his environment, physi-

cal and spiritual; but most to be envied is the one who can exert the greatest influence on his fellow-men in the line of the increased well-being of all humanity himself included."

CHAPTER V

THE CONCEPT OF SOCIAL EFFICIENCY

We have so far seen, what the proximate and ultimate ends are, for which society exists. These represent the needs of society. To satisfy these needs, society has to take stock of its material, technic, and human resources; and to see that they do not lie unused or misused. Conscious improvement of society by society means doing away, with ill-directed and ineffective efforts, with conflicting efforts at cross purposes &c. Here too, we have to examine, the whole cycle of activity from effort to resultants, and find out the proportion of actually used effort to available effort and the reasonably attainable result of the effort spent, to the actual result which the effort achieves. Social efficiency is thus the finding and taking of the best, easiest and quickest ways to the social welfare—that is the sum total of social ends. It is measured by the ratio between the reasonably attainable maximum of desirable result and the actually

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attained result for a given amount of social endeavour.

The concept of social efficiency may perhaps be best summed up by stating what an efficient society will be like. Let us see.

I. An efficient society, whatever other characteristics it may exhibit, will surely be one that has directed its efforts to thoroughly investigate and explore its surroundings, has studied and knows its physical, climatic, geographic, geologic, mineralogic, vegetable, animal and human environment with a view to finding out how best to appropriate, transform and conserve it for socially desirable human needs present and prospective. In brief, an efficient society will direct its efforts to an exhaustive and intelligent survey, of its surroundings, will try to find out as things are.

II. An efficient society will be one that continues discovering and adopting the best available tools, and technique for appropriating, transforming and conserving its environment in the easiest and quickest

ways for the provision of its human needs. Or briefly an efficient society will be one that effectively provides adequate food, shelter, and clothing for all its members, at minimum cost in human effort.

III. An efficient society will be one that stands high in vital economy, in conservation of life and health of its members. It will be one with the highest birth-rate and lowest death-rate and one that ensures the longest lease of life to its members. It will be one that is advanced in sanitation and prevention of disease, having effective public health and medical aid departments.

IV. An efficient society will effectively impart its social heritage to all its members, will educate all to the best of their capacity and with reference to the ascertained social needs.

V. If it be a fact, as it appears to be, that a rotation of activities is as necessary to get full value out of an individual's energy, as a rotation of crops to get full advantage of soil properties, an efficient society will train each

individual for a series of specific occupations, of head, hand and heart, according to his capacities and its own needs. It will ensure all members, conditions necessary for long useful lives. It will co-ordinate varying types of activities and individuals, transforming them for greater integration.

VI. It will guide all its members towards mutual help and harmonious co-operation and thus curb internal disintegrative elements.

VII. An efficient society will be able to protect itself from outside destructive aggression or exploitation and will try to establish co-operation and harmonious relationship with surrounding societies for the good of humanity as a whole.

An efficient society will be one that scientifically has comprehension and technically exercises control over its material resources and physical energies, that economically has an efficient agriculture, manufacture, trade and transport, secures maximum production, just distribution and wise consumption of goods and services. An efficient society will

be further characterised by vital economy, by conservation of human life. It will conserve, develop and discipline its human units towards greater co-operation and integration. An efficient society will be able to protect itself from outside aggression and enter into mutually beneficial relationship with other societies.

The problems of social efficiency then are how best to protect all from disease, disharmony and outside attack, to provide food, shelter and clothing for all, to guide all to understand and control themselves and their surroundings.

CHAPTER VI SOCIAL SURVEY

To be really efficient we have to give up guess work. Not only must we not rely on guess work but we must also be very cautious in disposing of things by committee methods, that is, decision by debate. Decision by debate is helpful towards effective thinking only if facts have been scientifically ascertained and agreed upon. Otherwise it is more or less advocacy dictated by what our imagination or interest suggests at the moment. It is the characteristic of the unscientific method to advocate before investigating and of the scientific method to investigate before advocating. Worship of accurately ascertained 'facts' must take the place of worship of 'opinions' before any progress can be made. We have therefore to begin by finding out the facts *i.e.*, demonstrable, verifiable information about a society and its surroundings before framing

any programmes of improvement or greater social efficiency. A social survey is therefore the first necessity towards social efficiency.

The student of social efficiency must begin by making or procuring a map of the neighbourhood, village or city or district which he wants to survey. A series of outline maps—physical, climatic, geologic, mineralogic, vegetable, animal, industrial, sanitary and social and political would be the preliminary records of a social survey. Such synoptic view of the situation would yield a vision of the place as it is. Such a series of maps would form the scientific back-ground of facts on which discussions might be made and on which working suggestions might be based for criticism and adoption.

A society as we have already shown presupposes a place and a people in communication, pursuing some common purpose or activity. It is a population in partnership with territory or natural resources, drawing its subsistence from such resources or transforming these towards its own needs. Besides these

maps showing the natural resources of the place, the social surveyor requires social, religious, educational and political maps showing distribution and density of classes and institutions. Further he has to investigate the ideals, sentiments and activities, habits, customs and laws of the people of the place he wants to study. He has also to study the industries and technical developments of the place. The prevalent industries, tools and processes have to be surveyed and compared with a view to finding out the best available tools and processes and making the best more prevalent, while trying to discover better modes.

The triad of organic life, is environment acting upon organism and organism reacting on environment. Environment functioning on organism and organism functioning on environment. The three terms are environment, activity and organism. Similarly the triad of social life, and social investigation as developed by Le Play and further elaborated by Prof. Geddes is place acting on people and acted upon by them. Place working the folk

and folk working on the place. The simplest survey would therefore cover the three terms of this triad in their elementary objective form *i.e.*,

The place.—The physical and organic environment in its unified and manifold aspect as a whole and in its parts in relation to the whole.

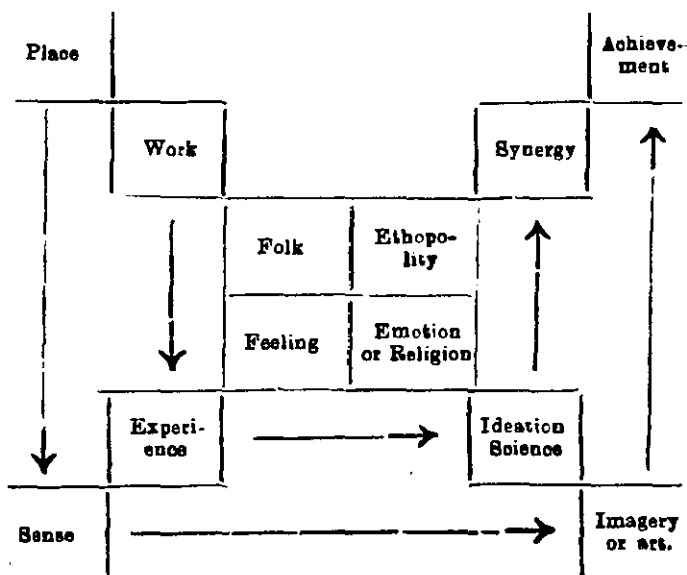
The work.—or activity in its manifold aspect as well as its unified one *i.e.*, as a whole of correlated parts.

The folk.—or people in their manifold aspect as well as aspect of a whole of correlated parts.

But this place, work and folk give rise to the subjective phenomena in the folk. The place awakens the senses, the work yields experience and the folk arouses the feelings of the people and so a further three-fold map of the keen-ness of senses of the population, the variety of experience afforded by their occupation and the prevalent folk feelings has to supplement our elementary, objective survey.

These three elementary subjective experiences give rise to further subjective developments. The awakened senses are developed into artistic perception, the experience is synthesised into ideation or science and the feelings develop into emotion, or religion and thus a further three-fold map of the artistic, scientific and religious development of society has to be brought in, to give a fuller view of the society.

These again develop into systems of Ethopolity, political and civic conduct of the community, systems of co-operative effort and actual achievements of the community. According to the plan developed by Prof. Geddes a twelve-fold view of the society which can be further developed into a 36 fold view thus becomes possible.



The achievement in its manifold form may be best studied under the six headings laid down by Professor Small. According to him 'Having an adequate conception of the social process in general, the knowledge which we need in order to understand a particular situation includes the following ;—

"1. A schedule of the sanitary and hygienic achievements and needs of the civilization ; that is, the situation so far as it primarily concerns physical well-being.

2. A schedule of the economic achievements and needs of the period; that is, the situation so far as it primarily concerns human control of the resources of nature.

3. A schedule of the socializing achievements and needs of the period; that is, the situation so far as it primarily concerns the adjustment of social relations in other words, the current apportionment among individuals of access to the opportunities of nature and society.

4. A schedule of the scientific achievements and needs of the period; that is, the situation so far as it primarily concerns discovery of truth and degree of its dissemination among the people.

5. A schedule of the aesthetic achievements and needs of the civilization; that is, the situation so far it primarily concerns artistic creation and appropriation.

6. A schedule of the ethical achievements and needs of the period; that is, the situation so far as it primarily concerns the intellectual and moral development of the population."

To familiarize himself with the technique of social survey, a student may best begin with a survey of typical families studying them intensively after the method of Le Play, with whom the survey idea may well be said to have taken a definite shape. After that he may proceed to neighbourhood survey, to occupational group surveys, to village and city survey. The schedules employed by workers in these fields will be helpful to him. A few illustrations will therefore be given here. To begin with Le Play's method of studying typical families, we reproduce below a schedule of the headings and sub-headings usually employed by him. We might preface the schedule by the caution that families or folk are always to be studied with reference to their surroundings and occupations. Enquiries suggested by the following headings are to be carried on (a) by direct observation (b) by direct questioning (c) by evidence gathered from neighbours.

HEADINGS.

A. *Definition of place.*

(With reference to the city map or village map or longitude and latitude) *industrial organization and the family.*

1. State of the soil and the prevailing industry of the neighbourhood people.

2. Civil status of the family (numerical strength, married, single etc).

3. Religion and moral habits.

4. Health and sanitation.

5. Rank or social status of the family.

B. *Means of existence of the family.*

6. Property.

(a) Immoveable.

1. House.

2. Rural residence.

3. Land.

(b) Cash.

(c) Domestic Animals.

(d) Industrial Equipment.

7. Subsidiary property, common rights etc. of males.

8. Work and industries of females and children.

C. Mode of existence.

9. Food and drink.
10. House, Furniture, Dress, utensils.
11. Recreation.

D. History of the family.

12. Principle phases of existence.
13. Caste and institutions for assuring the physical and moral well-being of the family.
14. Budget of the annual receipts.

E.—Sources of income.

Sec. 1. Property. Current Income.

Immoveable,
Moveable

2. Subsidiary
3. Labour
4. Industrial Enterprises.
15. Budget of annual expenses.

(a) Expenses on food.

Cereals
Ghee
Vegetables

Drinks

Fruits

Condiments.

(b) Expenses on shelter.

Rent.

Carriage.

&

Cartage.

(c) Expenses on dress of males, females
and children

(d) Expenses on Religion &c.

Educational

Recreational

Medical.

(e) Industrial, debts, taxes and insur-
ance.

16. Accounts annexed to the budget.

(a) Exploitation of domestic animals.

(b) Cultivation.

(c) Manufacture of dress. Receipts &
Expenses.

(d) Manufacture of food.

(e) Any other industrial enterprise.

(f) Forest products.

(g) Labour on food stuffs done in family.

(h) Other accounts, entertainment and guests.

F. Important facts regarding social organization particular remarks, general appreciation and conclusion.

17. Physical constitution of the type.

18. General habits of the type, stage of constitution.

19. Construction of their buildings.

20. Religious organization.

21. Rites and ceremonies common among the people:

22. Marriage institutions.

23. Authority of the chief of the family.

24. Position of woman.

25. Prevalent industries.

26. General remarks.

Proceeding from family survey to civic survey, the following remarks and headings proposed by the sociological society will be found helpful.

“No single scheme of survey can be drawn up so as to be equally applicable in detail to

all towns alike. Yet unity of method is necessary for clearness, indispensable for comparison; and after the careful study of schemes prepared for particular towns and cities, the sociological society is agreed upon a general outline, applicable to all towns, and easily elaborated and adapted in detail to the individual of each town or city. It is therefore appended as suitable for general purposes, and primarily for that preliminary survey previous to the preparation of a town planning scheme which is the first and last recommendation for this committee."

"The survey necessary for the adequate preparation of a Town-Planning scheme involves a collection of detailed information upon the following heads. Such information should be as far as possible in graphic form i.e., with statistical summaries, and with the necessary descriptive text; and thus suitable for exhibition in Town House, Museum or Library, or when possible, in the City's Art Galleries."

“The following general outline of the main headings of such an enquiry admits of adaptation and extension to suit the individuality and special conditions of each town and city.” Geddes. ‘Cities in Evolution.’

Situation, Topography and Natural Advantages:—

- (a) Geology, Climate, water supply etc.
- (b) Soil with vegetation.
- (c) River or sea fisheries.
- (d) Access to nature (sea-coast, etc.)

Means of communication, Land and water:—

- (a) Natural and historic.
- (b) Present state.
- (c) Anticipated developments.

Industries, Manufactures and Commerce:—

- (a) Native Industries.
- (b) Manufactures.
- (c) Commerce, etc.
- (d) Anticipated Developments.

Population:—

- (a) Movement

- (b) Occupations.
- (c) Health.
- (d) Density.
- (e) Distribution of well-being (family conditions, etc.).
- (f) Education and Culture Agencies.
- (g) Anticipated Requirements.

Town Conditions :—

- (a) *Historical*.—Phase by phase, from origins onward. Material survivals and Associations.
- (b) *Recent*.—Particularly since survey time, indicating areas, Lines of Growth and expansion, and local changes under modern conditions, e.g. of streets, open spaces, amenity, etc.
- (c) Local Government Areas (Municipal, Parochial, etc.).
- (d) Existing Town Plans, in general and in detail.
 - Streets and Boulevards.
 - Open spaces, parks, etc.
 - Internal communications, etc.

Water, drainage, lighting, electricity, etc.

Housing and sanitation (of localities in detail).

Existing activities towards civic betterment, both Municipal and private.

Town Planning Suggestions and designs :—

(A) Examples from other towns and Cities, British and Foreign.

(B) Contributions and suggestions towards town-planning scheme, as regards :—

(a) Areas.

(b) Possibilities of town expansion (suburbs, etc.).

(c) Possibilities of City Improvement and development.

(d) Suggested treatments of these in detail (alternative when possible).

“The international committee of civic arts situated at the Hague has drawn up the following schedules which may conveniently be adopted.”

General Topography	A.
History and Archaeology	B.
Traffic	C.
Growth and Development	D.
Housing	E.
Recreation	F.
Garden cities and suburbs	G.
Education	H.
Art	J.
Environment	K.
Structural methods	L.
Hygiene	M.
Economics	N.
Law and custom	O.
Administration	P.

“ Even this list may not be found fully comprehensive and it is quite possible that other groups will need be added from time to time. We may, however, regard it as a suitable scheme for our present work and deal with its sections in detail.

“ The original programme involves a great deal of cross classification and repetition. It has been simplified, following more closely the

lines on which our previous studies have been carried on.

“By adopting the international classification we shall assist the general progress of this work, but the details are only put forward in a tentative form there can be no harm in reserving the right to simplify and re-arrange these as has been done in this revision.” Lanchester “Town Planning in Madras.”

A. (*General Topography*) includes the preparation of:—

1. A Geological map.
2. A contoured map.
3. A map showing the nature of soil.
4. A map showing the original character of area.
5. Diagrams showing the climate (a) seasonal temperature (b) rainfall (c) prevailing winds (d) evaporation. etc.
6. Map of water, areas etc. (a) sea and tidal water (b) rivers with volume (c) lakes, tanks, and reservoirs (d) levels of ground water.

7. Maps showing the utilisation of surface either natural as forests and wastes, or artificial building cultivation, etc.

8. Maps showing the sites of mines and allied activities.

9. A map showing areas fully irrigated, partially irrigated, and dry land.

10. Zoological map, distribution of animals.

11. Ethnographical map.

12. Political record with maps.

B. (History and archaeology) Historical studies should include:—

1. A plan showing by varied tintings the extent of the city at various past dates.

2. Plans showing variations in the arrangements and features of the city in the past such as lines of fortification, water courses, tanks, etc.

3. Notes and diagrams as to periods of stagnation or developments with reason of same.

4. Old maps and views, or copies of these, should be collected and arranged in order of date.

Reference should be made to those in existing collections.

5. Particulars of popular and religious festivals.

6. Particulars of special customs, ancient and existing, in the locality.

Archæological studies should include:—

7. A map showing the position of all structures and sites of archæological interest tinted in accordance with the date to which they belong and numbered for reference.

8. Plans, photographs, and particulars of the structures and sites numbered above with references to sources from which further information could be obtained.

9. Names of present owner and occupier, details of past and present use, alterations and restorations, etc.

C. (Traffic) deals with traffic statistics, the volume of traffic being shown on plans by

the width of the line traced along the routes.

1. Railways; (a) tonnage of goods (b) number of passengers, fares, and time by zone maps.

2. Trainways, similarly with fares and time on zone maps.

3. Road vehicles (estimated by units).

4. Road Pedestrians.

Road vehicles should be reduced to a common denomination both on the basis of degree of obstruction caused and on that of the value of the vehicle with its load.

5. Waterways.

6. Notes and drawings should show the construction of roads and other traffic routes.

7. The adequacy or otherwise of existing traffic routes should be dealt with.

8. Special consideration should be given to road intersection and all points where traffic difficulties arise.

9. Illustrated descriptions of bridges classified according to purpose and type of construction. These should also be considered

from the æsthetic point of view especially as to their harmony with the surroundings. (see also section J.).

10. Railway stations and other adjuncts to transport should similarly be dealt with.

11. Vehicles and other plants should be studied in relation to traffic requirements.

D. (Growth and development) comprises the following studies :—

1. Plans of typical cities showing the lines on which they have developed.

2. Plans showing the functional grouping of civil life and the tendencies towards the formation of centres and quarters.

3. Graphic illustrations and maps showing density of population at various times, and in various areas.

4. Plans and diagrams showing how 3 has been influenced by considerations of commerce, transit etc. .

E. (Housing) deals with dwellings under the following heads :—

1. A plan showing residential areas classified according to type of house.

2. Illustrations showing types of housing referred to in 1 such as (a) block of dwelling (b) terrace (c) semidetached (d) detached houses, further graded as necessary according to size.

3. A plan showing areas occupied by houses of undesirable character.

4. Plans showing the zones of distance between residential areas and public institutions as schools, libraries, baths, parks etc.

5. Plans showing the cost of building of various areas.

6. Plans and diagrams showing cost of living in various areas.

7. Plans and diagrams showing the cost of public services, rates, lighting, power etc. in various areas.

8. Zone plans showing time taken to reach city centres from residential areas.

9. Zone plans showing cost of transit from these areas to city centre.

10. Studies in social methods, co-operative housing and living, and kindred activities.

F. (Recreation) deals with open spaces under the following heads :—

1. Parks, commons, reservations, public recreation grounds etc. the areas of which should be coloured green on a general plan.

2. Private or semi-private recreation areas shown on plan in a lighter tint of green.

3. Permanent open spaces as cemeteries, reservoirs, etc. etc. not available for recreation shown in sage green.

4. Waste and unemployed land casually used for recreation coloured grey.

Original history, characteristics, and utilization of these open spaces, as a guide to the principles to be followed in regard to laying out same. Proportions of population that take part in various exercises or games.

5. Promenades and avenues.

This section also deals with buildings for recreation and shows on a plan.

6. Public buildings for entertainments.

7. Libraries.

8. Baths.

9. Private places of entertainments.

History, character, leading features, accomodation, etc. Diagrams should show

graphically the number of visitors annually and seasonally, in classes to 1 to 9.

G. (Garden suburbs and cities) treats of.—

1. The advantages and disadvantages of this method of development.

2. The financial systems on which it may be organized.

3. The planning and organization.

Illustration may be drawn from examples at present existing.

The suburb and the city would be kept distinct as involving different guiding factors.

H. (Education) may commence by showing on plan the following.

1. (a) Elementary schools (provided)
coloured red.

(b) Elementary schools (non-provided)
coloured brown.

(c) Secondary schools
coloured orange.

(d) Private schools
coloured blue.

(e) Boarding schools
coloured green.

(f) University college and technical institutes for specialised teaching coloured purple.

2. The plans should be accompanied by statistics graphically expressed as to number of scholars, the areas from which they are drawn, their playgrounds etc.

3. Diagrams showing the provision of school accommodation relatively to the density of the population.

4. Studies in the character of school buildings and the accommodation they are designed to afford.

5. Plans etc. showing educational institutions supplementary to schools, as libraries, museums, lecture and concert halls, gymnasia, etc.

6. Notes as to progress, physique, and circumstances of the students.

7. Teaching methods, scholarships, and further studies cor-relating to other sections.

8. Notes as to subsequent career of students as related to the education they have received.

J. (Art.) relates to artistic problems in connection with civic design.

1. Questions relating to the effect of the city as a whole.

2. Questions of scale, mass, skyline, solids and voids, as contributing to general harmony of effect.

3. The relation between the city structure and natural beauty.

4. The embellishment of the city, monuments, accessories etc.

5. The co-operation of various arts.

6. The influence of structural methods on artistic expression.

7. Educative influences promoting appreciation of the arts.

K. (Environment) is substantially a localised study on lines of section. A dealing with the protection of all that is best in the natural surroundings of city.

1. From a social and scientific point of view.

2. From the historical aspect.

3. From the stand point of beauty.

These cover the considerations with regard to the preservation of typical scenes, buildings etc.

L. (Structural Methods) deals with the influence of materials and constructive traditions on the appearance of the city; it comprises;—

1. Illustrative studies of past and present uses of materials and methods of construction.
2. Economic factors dictating these.
3. Materials used in construction of roads, bridges etc.
4. Materials used for buildings and their embellishment.
5. Materials employed for accessories as roads and rail vehicles, fitting etc.

M. (Hygiene) deals with the following:—

1. Climatic influences (diagrams).
2. Considerations of site, soil etc. by plans showing soil levels and natural drainage etc.
3. Vital statistics past and present:—

- (a) Maps showing density of population.
- (b) Maps showing death-rate.
- (c) Maps showing zymotic death-rate.
- (d) Maps showing infant death-rate (per 1000 born)
- (e) Maps showing birth-rate.
- (f) Maps showing areas specially affected by epidemics.

In each case an average of five years may be taken, and the city may be subdivided.

- 4. Diagrams illustrating physique.
- 5. Diagrams showing proportions of misdemeanour and crime.
- 6. Provision of infirmaries, hospitals, prisons, etc., shown on plans with accommodation in proportion to population served.

For the infirm.

For the diseased.

For mental deficiencies.

For epidemics.

For criminals.

7. Diagrams showing cubic amount and heights of buildings in relation to health.

8. Building regulations and their effect on health.

9. Sanitation, sewerage and scavenging.

10. Condition of buildings.

11. Disposal of the dead, cemeteries and crematoriums.

12. Other services affecting health.

N. (*Economics*). This section appears somewhat inadvisedly to have been limited to communal activities; it should obviously have a more extended scope comprising the following, illustrated by plans and diagrams.

1. Industries of city and district.

(a) Large factories.

(b) Small factories.

(c) Home industries.

2. Transport.

(a) Import and distribution.

(b) Collection and export.

(c) Personal locomotion.

3. Wages in relation to housing and purchasing power.

4. Public accommodation and services.
5. Land cultivation.
6. Comparative studies on decaying and expanding industries.
7. Seasonal and intermittent employment.
8. Diagrams of unemployment in trades by the week and year.
9. Methods of financial control.
10. The value of land in various zones or areas.
 0. (*Law and custom*) deals with ;—
 1. General regulations for towns.
 2. Rules for town planning.
 3. The relation between the laws of the land and local enactments.
 4. The laws relating to the protection of
 - (a) Historic monuments.
 - (b) Natural objects, flora and fauna.
 - (c) Open spaces and rights of way.
 - (d) Health and conditions of labour.
 5. Conditions of public employment.
 6. Systems of franchise.
 7. Religious and religious observances.

8. General and local customs and habits of life.

P. (*Administration*) deals with the methods of control employed in respect to communal services;—

1. The governing bodies for:—

(a) The Municipal services.

(b) The Judicial „

(c) The Hygienic „

(d) Educational „

(e) Other official „

(f) Regulation-and commerce.

(g) Religious and philanthropic bodies.

1. Including the method of appointment to these; whether they are compulsory or voluntary, etc.

2. Cost of various administrative services and how these costs are met.

From civic-survey we may proceed to cite an example of social survey. In France Demolines has developed a classification of social facts much on the place, work and folk formula of Le Play. Those desirous of consulting that may refer to the appendix to "France

of to-day" by that author. Similarly a very suggestive scheme of social survey has been developed by Prof. Small giving detailed schedules for investigating:—

- I. Achievement in promoting health.
- II. Achievement in producing wealth.
- III. Achievement in harmonizing human relations.
- IV. Achievement in discovery and spread of knowledge.
- V. Achievement in the fine arts.
- VI. Achievement in religion.*

CHAPTER VII.

THE PROBLEM OF POVERTY.

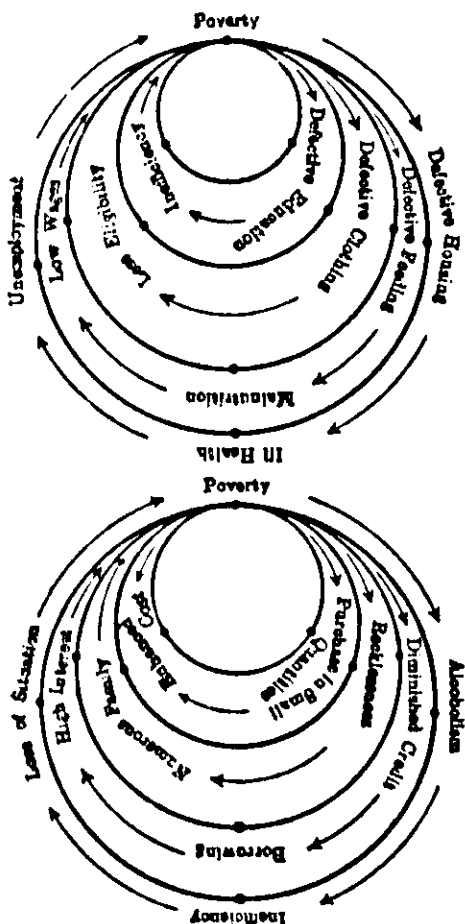
We have said an Efficient Society will intelligently survey, explore, classify and catalogue its material subhuman surroundings and will go on discovering and adopting the best available tools and technique for appropriating, transforming and conserving its environment in the easiest and quickest ways for the provision of its human needs ; or briefly an efficient society will be one that effectively provides adequate food, shelter and clothing for all its members, at minimum cost in human effort and minimum loss of irreplaceable material resources. One of the problems then that an efficient society will solve by means of all the resources at its command will be the problem of poverty.

The presence of poverty is an index to the inefficiency of a society. And what is poverty ? Roughly we may accept Godard's definition given on page 5 of his "Poverty, its genesis and exodus." With him we may define poverty as " *An Insufficiency of Necessaries*"; or more fully "An insufficient supply of those

things which are requisite for an individual to maintain himself and those dependent upon him in health and vigour". "Obviously, an adequate supply of wholesome food, and suitable clothing, and a sanitary dwelling with sufficient sleeping apartments, are among the first requisites. To these must be added the means of obtaining some amount of education. Recreation also and consequently the ability to procure it, and the leisure to enjoy it, are scarcely less necessary to healthy existence. Medical aid and medicine in times of sickness, and more expensive forms of nourishment then and during convalescence are equally essential. And freedom for the married woman and to some extent for many of the unmarried must be included in our category. All these are "Necessaries" in the case of the very humblest members of society. Those in towns, and those devoted to works of skill or mental avocations will have a still longer list of necessities. The degree of poverty is obviously determined by the extent of insufficiency of necessities as above defined."

The problem that will emerge for solution, and challenge the efforts of an efficient society will be to ascertain the real nature of poverty, classify its causes, and prescribe suitable individual and community defence, against this state of "insufficiency of necessaries."

Several sincere souls have considered this problem of poverty and offered the results of their individual research and insight for guidance of workers in this field. Thus Doctor Harry in his book now revised and enlarged conceives of poverty as a self perpetuating disease with its vicious circles. Poverty according to him is of the nature of a self perpetuating disease that attacks individuals or sections of a community, generating a vicious circle which must be broken through at its weakest point. He emphasises this cyclic aspect of poverty requiring individual treatment in each particular case, according to the vicious circle that has been generated. His diagrams are instructive. We give on the opposite page the 1st one of his series of seven excellent diagrams the rest may be referred to in their proper places.



1. Concurrent Circles in Poverty
 as shown by Dr. Harry in his
 "Poverty and Its Vicious Circles"

Over against Dr. Harry's conception we may place the treatment of this problem by sociologists. Ward treats poverty as the outcome of the social force of hunger and cold. He is for stimulating production and co-operation among the exploited working classes for securing a due share of the surplus. Hayes in his "Introduction to the study of sociology" conceives of poverty as the result of a free fight among contributories to a product, which results in the unorganised labourers getting less than due share. Labour is purchased at a forced sale and is not allowed to come in as a claimant of the residual surplus after the class of capital and managers have been satisfied at the marked rate.

But about the most lucid treatment of this problem is that given by Godard in his 'Poverty; its Genesis and Exodus'. He conceives of poverty as an insufficiency that may be due to production falling short of requirements or the results of production being wasted individually or industrially or nationally or again the insufficiency may be due to unequal distribution or finally it may be self perpetuating an insufficien-

cy producing a greater insufficiency. The cure then lies in increasing production, decreasing wasteful consumption and establishing equitable distribution, to which we may add a fourth namely that after justice has been done. The generosity should come to help the disadvantaged. The real root causes of poverty then are insufficient production, unfair distribution, waste in production, distribution and consumption and as a complex fresh cause diversion of demand from simple necessities to costly luxuries, to conspicuous waste, to exclusive standards of pleasure getting. The individual may be directly responsible through drink or improvidence; the community may be responsible through neglect of its human capital, through defect in social arrangements of distribution, through misguided social approval instead of social condemnation of conspicuous waste.

All social phenomena are conditioned by regional, technical, psychophysical or individual and specio-psychic or social factors. So also poverty. The regional causes may be an inhosp-

pitable environment or an environment sufficient in resources but inhuman or uneconomically worked. The remedy is distribution of population according to the capacity of the region, better and greater knowledge of the material resources and better and greater use of the material environment. The technic causes may be use of primitive toolage, lack of employment of best processes or most economical units of production, want of skill or accumulated resources or capital. Better education, better toolage, better processes of production, better organization, better production, distribution, consumption, and finance are required. In short to remedy regional and technical defects better regional and technical universities are required to survey and utilise the resources of the region in the best easiest and quickest way.

Poverty may have psycho-physical causes. Ignorance, want of desire, vice, insanity, age, sex, disease may all partly account for individual poverty. Here better schools and better hospitals, better public health measures, more enlightened generosity are required.

But the greatest duty of a society is to remove the social causation of poverty, the defective and unfair method of distribution of the products among the contributors to a particular product, the doing away as far as may be with domination and exploitation by greater assimilation, visiting with the severest social condemnation of all conspicuous waste and setting the seal of social approval on elimination of waste and simplicity of life, on right consumption. Better economic and social structures are required. All social institutions must be held strictly to account for best, and fullest service, at the least human cost and replaceable and irreplaceable resources.

These conclusions may be diagramatised as on the reverse.

Poverty Problem.

I. CAUSES.

A. GEOGRAPHIC CAUSES.

Inhospitable Environment or Environment rich in resources but unknown and unworked.

B. TECHNIC CAUSES.

Industrial Development, Low-Knowledge, skill, co-operation or capital wanting.

C. PSYCHO-PHYSICAL.

Ignorance, want of desire, Vices, Insanity.	Age. Sex. Disease.
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D. SOCIAL.

Insufficient Production, Unjust Distribution through domination and exploitation, Wasteful Consumption.

II. REMEDIES.

Greater and better knowledge and Greater and better use of Environment.

Better Education.
Better Machinery.
Better Processes.
Better Organisation.
Better Banking.

Entuse the ignorant.
Educate the apathetic;
Correct the Vicious.
Treat the insane.

Pension the aged. Treat children as a national asset.
Provide for woman.
Erect individual community defence against disease. Prevent and cure disease.

Social abhorraunce for idle rich idle poor, Juster and better distribution. Detection, and elimination of waste. Disapproval of conspicuous waste, encouragement, of Plain living & High thinking.

III. INSTITUTIONS NEEDED.

Better Regional and Technical Universities.

Better Banking facilities.

Better Schools, Churches, Charities, Public Health Organisation and Hospitals.

Better Economic and Social Structure and Standards of approval and disapproval.

CHAPTER VIII. CONQUEST OF BREAD.

The basic idea of efficiency is to establish a profitable "non-equivalence between datum and results" Given a certain territory and a certain numerical strength of population, the results vary according to the character, organization and ideals of the community, race or people inhabiting the territory. It is always possible to take out less from a territory machine or man than its maximum which is hardly if ever reached. So from the human capital and the various institutions and resources that a people may have, the utmost is never taken out. The results reached fall miserably short of the reasonably attainable maximum. Hence the need of a wide knowledge and practice of efficiency.

For a society or people with such resources as we Indians have, it is quite possible, quite reasonably attainable that each and every one may have food, clothing and shelter, health,

knowledge and harmony instead of the miserable want of these.

That we with our united and intelligent effort can conquer bread, clothing and housing, disease, ignorance and injustice, is my hope nay conviction that leads me to write this. The problem I set before myself is how by united efforts to conquer poverty or provide bread, clothing and housing for all, how to effectively educate all, safeguard the health of each and every one and affectively prevent injustice interse between each other and from without.

The method of efficiency is at once scientific and simple and as it has demonstrably increased out-put in industries, it is bound to increase the output of our combined efforts, to reveal to us our leaks, losses and wastes and thus in the end secure for us the results we are aiming at.

The method very simply put is to observe and discover the best prevalent practice in any line of endeavour, by finding out how various persons reach the same results and

then to adopt and popularize the best method and from that to plan to better it.

Thus how do the British provide food for themselves? How do the persons who don't starve provide food for themselves? How shall we increase our general food supply? How shall we solve the problem of bread? These are the questions to be considered.

To make the question simpler how may our village arrange for its food supply? How may our city for its? Am I a villager? Am I a public worker in a city? It is my duty then to see how actually villages of the same size and resources as our own village, arrange for their food supply. The methods of the best have to be adopted.

Since the enquiry is to be scientific it must take note of the man-hours employed, the nature of the territory, the soil, climate and water supply and then either to increase the man-hours or save the man-hours as necessary.

A general observation may here be made. There are so many human units not engaged

in cultivation and so many acres uncultivated. Supposing all people took to agriculture as a part of their religious duty and before any one did any thing else he discharged the duty of raising bread for himself, would there not be sufficient food for all?

Thus Tolstoy and others have very seriously recommended this regime of bread labour to all. Mahatma Gandhi has a great faith in this. He called himself a farmer. Our poet Rabindranath has also introduced agriculture at Bolepur inspired by this need of social efficiency and the conquest of bread.

Others would invite us to use the best available methods and raise all we want with the least possible labour pointing out the reasonably attainable maximum yield per acre.

Both lines of attack are useful. We all consume food and if we cannot and do not aid its production by brain or brawn we simply steal out of the efforts of others. Therefore if we pride ourselves on being brainy persons, let us by the aid of science help the labours of the food producer, otherwise let us be honest

enough to work with our hands and directly aid the production of food.

Let each one ask how he aids the food produce, not in a fanciful imaginative way by means of currency, which no one consumes and no one can in the last instance live upon, but by hand, head or heart so as to work towards social justice.

This is the only way to prevent famines *i.e.* by direct concentration of effort on increase of food supply.

‘The joy of living without encroaching on the lives of others’ oh! how few of us have a conception of this, yet this is the life open to us if we but rationally organise our energies towards self sustenance.’ In ‘The conquest of bread’ Kropotkin gives facts and figures which go to show that 1/3 of the total population of ten departments of France working 58 work days of 5 hours a day would be sufficient to produce necessary bread, meat, milk, vegetable and fruit both for ordinary and even luxurious consumption. I quote in extenso:—

'Summing up the figures given on Agriculture, figures proving that the inhabitants of the two departments of Sein and Sein-et-Oise can live perfectly well on their own territory by employing very little time annually to obtain food, we have;—

Departments of Sein and Sein-at-Oise.	
Number of inhabitants in 1889	3,900,000
Area in acres	1,507,300
Average number of inhabitants per acre	2.6

**Areas to be cultivated to feed the
inhabitants (in acres)**

Corn and cereals	494,000
Natural, artificial meadows	494,000
Vegetable and fruit	1,7300 to 25,000
Leaving balance for houses	

Roads, Parks and forests	494,000
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Quantity of animal work necessary to improve and cultivate the above surfaces in five hours work days.

Cereals (Culture and crop)	days 15,000,000
Meadows, milk, rearing of cattle	10,000,000

Market, gardening culture high-	
class fruit	33,000,000
Extras	12,000,000
	<hr/>
	70,000,000

If we suppose that only half of the able bodied adults (men and women) are willing to work at agriculture, we see that 70 million work days must be divided among 12,00,000 millions which gives us 58 work days of 5 hours for each of these workers. With that population of the departments would have all necessary bread, meat, milk, vegetable, and fruit both for ordinary and even luxurious consumption. To-day a workman spends for the necessary food of his family (generally less, than what is necessary) at least 1/3 of his 300 work-days a year, about 1,000 hours instead of 200. That is, he thus gives about 700 hours too much to fatten the idle and would be administrators, because he does not produce his own food, but buys it of middle men, who in their turn buy it of peasants who exhaust themselves by working with bad tools

because being robbed by the land owners and the state, they cannot produce better ones.

“Ceasing to produce for unknown buyers, and looking in its midst for needs and tasks to be satisfied, society will liberally assure the life and ease of each of its members, as well as that moral satisfaction which work gives when freely chosen and freely accomplished, and the joy of living without encroaching on the life of others.”

This much then for productive efficiency. Efficiency analyses materials, machinery and methods and motives and so social efficiency would analyse here soil, improved implements, improved methods of cultivation, irrigation and improved operations. But, beyond this, efficiency studies men and motives too. Not only time and motion study but motive study, giving and demanding the fair deal characterises the efficiency ideal. So that social efficiency in this direction will have not only to stimulate productive efficiency but have to look into distributive efficiency, into land tenures and taxation &c. to see that the toiler gets the results of his toil, to

enforce his incentives to conquest of bread for himself and others.

How far has India advanced in the conquest of bread? We quote from Mr. Dayashankar Dubey's careful study of Indian food problem published in Vol. III of the Indian Journal of Economics " Table I gives us an idea of the total requirements, table II of the available supply and based on these is his conclusion, corroborated by testimony of those who have seen villages for themselves in areas liable to famine.

The total requirements, of the minimum quantity of food grains and pulses in different years, are shown in table I. The figures for the total supply of food grains and pulses in British India in the corresponding years as worked out by Mr. Dubey, are shown in table II.

TABLE I.
(In millions of tons.)

Year.	Quantity required for human consumption.	Quantity consumed by cattle.	Quantity required for seed.	Total requirements of food grains and pulses.
1	2	3	4	5
1911-12 ...	48.46	13.73	2.14	64.33
1912-13 ...	48.70	12.77	2.13	63.60
1913-14 ...	48.94	12.07	2.02	63.03
1914-15 ...	49.18	13.80	2.18	65.16
1915-16 ...	49.43	14.23	2.17	65.83
1916-17 ...	49.68	14.27	2.24	66.19
1917-18 ...	49.93	14.19	2.28	66.40

TABLE II.
(In millions of tons.)

Year.	Total outturn excluding wastage.	Excess of imports of food-grains from Native States.	Excess of exports of food grains to foreign countries.	Total supply of grains and pulses.
1911-12 ...	60.44	0.26	5.11	55.89
1912-13 ...	57.36	0.31	6.51	52.16
1913-14 ...	52.36	0.28	4.18	48.46
1914-15 ...	56.40	0.17	2.53	54.04
1915-16 ...	60.10	0.24	2.38	57.96
1916-17 ...	63.07	0.35	2.90	60.52
1917-18 ...	62.00	0.31	4.51	57.80

"From the above study" Mr. Dubey, writes "we are forced to the conclusion that even in the best year from the agricultural point of view (*i.e.* 1916-17) and even with restricted exports of food-grains to foreign countries due to the war, so many as 160 millions of people in that year, were in a position to get only 79 p.c. of the coarsest kind of food-grains to maintain them in health and and strength; and in a famine year (1913-14) the percentage fell to such a low figure as 62. Taking an average of all the seven years, it will be seen that 64. 6 p. c. of the population lives always on insufficient food getting only about 73 p. c. of the minimum requirement for maintaining efficiency. In other words, it clearly shows that two thirds of the population always get only three fourths of the amount of food grains they should have."

"It is just possible that one third of the above number (two thirds of the population) may be getting a little less than 90 p.c. of their requirements; and the rest of the two-thirds or 100 millions, in spite of hard labor, may be

getting for a greater part of the year less than 60 p.c. of food-grains that are given to the worst sort of criminals in the jails of the U.P. & C.P. This clearly shows the gravity of the situation in which we find ourselves. The country cannot make progress in any way while such a state of affairs continues."

The above conclusions are in full accord with the experience of those who have carefully observed the conditions of living of the Indian masses in their own villages; and they unmistakably show, as nothing else can, the urgent necessity of taking in hand immediately, and in right earnest the problem of agricultural improvement along right lines to help the Indian cultivator, to raise two blades of corn where one grows now.

What then is the remedy? Dr. Mann carefully analysing the condition of two dry Deccan villages admits the existence of poverty, but is of opinion that it is partly due to excessive fragmentation of holdings. Through a differential analysing he comes to the conclusion that rising prices make the few rich, richer, and

the many poor, poorer still. Mr. Jack analysing the economic conditions of a Bengal District is also impressed with the poverty of the peasant but thinks it is partly due to unequal taxation, the richer folk bearing less the burden of taxation. Dr. Slater in concluding remarks of study of South Indian villages says the inequality of taxation as between the rural population and city population is justified, for the state is part-owner of all the land. He is against consolidation or doing away with fragmentation, for, he says that will drive away the rural population into the cities and we shall have been of agricultural produce.

All this evidence needs careful study. But the fact remains that agriculture is not attractive for the educated and the efficient. If the conquest of bread is to be achieved the educated and the efficient must be attracted to this industry. And they can only be attracted if they are offered equal terms in this industry, if there is a minimum of income, free from land-tax in the case of peasant proprietors. The fact is that the city dweller enjoys the benefits of

Government far more than the villager and pays towards the cost of Government far less. As a clerk the educated man has the advantage of a tax free minnum, as a peasant proprietor he has no similar advantage. This makes for draining away all trained talent from work and management of land and leads to the degeneration of rural life. If conquest of bread is to be achieved, agriculture should become the most favoured industry and not the least favoured industry as at present. This essential injustice towards the agriculturist must be removed.

The idle hours of the agriculturist must be reclaimed by encouragement and improvement of cottage industries so that he may not have to pay in produce for what he can supply by his own labour. Agricultural co-operative credit must come to his help to enable him favourably to convert his produce into cash. Just methods of taxation, would attract more and better people to the land, introduction of cottage industries would keep them in the village, co-operation would increase their cohe-

sion and these appear to be the most important remedies for helping the conquest of bread for the starving 100 millions who get less than 60 per cent of what they would get if they turned criminals.

CHAPTER IX

CONQUEST OF SHELTER

The ideal is to provide everybody with a suitable house. Now too human energy provides habitation for human units and families but there is generally not sufficient habitation for all in the cities, there is too often overcrowding and sometimes hundreds are without a shelter and sleep on foot paths etc.

Social efficiency would try to find out the best and easiest and quickest way of providing suitable, healthy habitation for every human unit and family that lives or labours in any locality.

How would a village provide habitation for its people? Now every one helps himself and often at the cost of another or to the detriment of another. There is no central planning department, there is no co-operative performing — no mutual aid. Social efficiency would

require planning previous to performance, mutual aid and co-operation instead of mutual antagonism and competition. The population and number of families would be ascertained. The layout would be examined and open healthy layout in suitable groups would be settled. Materials or resources near at hand would be examined. The cheapest sanitary abode for a moderate sized family would be settled by mutual consent and the community would take it on itself to see that every one is helped in providing himself with such a suitable habitation. Where there is a shifting population the community would be the custodian of the accommodation to be let out according to the plan and need.

The number of hours of human labour required for provision of habitation would be ascertained and made known. The labour power of the community necessary for the purpose would be requisitioned, and every one willing to contribute that much labour power would be entitled to suitable habitation. The policy would be that every one may own a

house, the community being the only landlord for houses, for shifting population. The housing production engineer would be responsible for providing houses for all willing to contribute the necessary labour. The curse of competitive capitalistic land hunger would be got rid of as soon as possible. The building labour would not be diverted to palace-making so long as the housing needs of the community have not been satisfied.

Such a scheme may in the beginning require every adult to work a certain number of hours for helping himself to habitation. But it is only natural to pay the lowest labour cost for the necessary habitation. That is the natural equivalent, reducable only by better invention and better toolage. The social element of injustice due to monopoly, rackrenting, with-holding from use will be avoided and done away with.

The co-operative housing plans of present day, the development of cheap open areas, the provision of traffic facilities are all efforts of the community towards repairing the harm

done by the competitive, selfish and unjust system prevailing to-day.

The idle rich contribute nothing to the building labour and yet own the products of labour. Shortage is bound to occur when labour is diverted to construction of imposing structures before the primary healthy housing needs of the community are satisfied. Shortage is also bound to occur when the available supply of labour is withheld from any cause. Social arrangements in this direction are so obviously defective that an energetic attempt is needed on the part of the society to right the wrongs.

The ideal of providing shelter for all by all being clear and 'Common sense' having tested its desirability and practicability 'Competent counsel' of civil engineering and building talent would be consulted for the best and quickest method. The members of the society will have to discipline themselves to contribute the necessary brain work and muscle work and make themselves enthusiastic and draw their hope from vision of the reward.

They will seek out the most economical sanitary abode available in the neighbourhood and will set about duplicating that type and at the same time improving it, laying down the standard tools and standard operations for completing the house. The work will be planned and the plan will be worked and thus shelter will be provided for all. The most economic, sanitary abode converted in labour hours will show how much portion of the adult energy is necessary for provision of such an abode. The usual rents paid will show how much more of earning power is actually taxed by the competitive capitalistic machinery that provides abodes and the difference will reveal the waste that goes to maintain the idle capitalist.

That communities will one day wake up to this condition is a hope justified by the spectacle of evolution that has gone on and is going on. Those communities and societies that apply these principles of planning and co-operative performance earliest and more thoroughly than others will reap the rewards

earlier and set free their energy for higher endeavour.

In this connection the example of Ulm in Germany will be found of interest. Pollock and Morgan in their excellent book "Modern Cities" tell us "Ulm in Germany, has probably gone farther in the matter of constructing municipal tenements than any other city on the continent of Europe. It has purchased large tracts of suburban land and after improving them has resold a portion of the sites and has erected cottages and cottage flats on the other parts. From 1891 to 1909 this city purchased over twelve hundred acres of land for \$ 1, 390, 000 and resold 404 acres of land under full restriction for \$ 1, 633, 000. In this way a portion of the unearned increment has come into the treasury of the city where it rightfully belongs, and the people have been able to secure building sites at reasonable prices. Ulm erects cottages to sell to workmen on easy terms or the workmen may rent them if they prefer. It is generally conceded that the real state ventures of Ulm

have proved beneficial to the city as a whole and especially to the working people. It is worth noting that this city by its farsighted policy owns 80 % of all the land in and around the city, and has been able to keep down the prices for both industrial and residential purposes, and greatly limit land speculation." (page 170 'European cities at work'.)

References. Unwin "Town Planning" '19 (Fisher Unwin, London).

Adams. "Rural Planning and development" issued by the commissioner of conservation, Canada 1917.

Howe. "European cities at work" (Scribner New York, 1917.)

CHAPTER X. CONQUEST OF CLOTHING.

A production engineer would first find out what and how much he has to produce. So a society would first ascertain its requirements in this direction. The number of men, women and children that compose the society would be ascertained. The man hours of labour required to meet these needs according to the best tools available in the locality would be taken into account. The community would organize its labour resources to contribute the necessary amount of labour for that purpose. This will solve its problem of employment as well as its clothing problem.

It is often forgotten that the labour power available in a community is as much a fixed investment as any other and that to allow it to lie idle and unemployed is a loss to be taken into account. The number of those that are voluntarily idle, and those who though willing

to work are still unemployed, on account of want of work, represents the potential labour reserves to be used for the purpose of different conquests. The efficiency of a society will be measured by the extent to which it prevents waste of its potential labour resources.

The economic association of each efficient village would find out the imports of cloth from outside, the total number of man hours left idle in the village itself and the consequent poverty of the village. The way out of the poverty would be to utilize the potential labour for fulfilling this need.

In 1918-1919 India imported £ 40369871 or over 60 crores worth of cotton manufacture. There was enough idle and available labour going without employment, a tax on the resources of the country instead of a productive asset that it could have been made, had we been efficient.

India is thus waiting for the transforming hand of a reformer who would find a way for employing these unemployed and starving as well as, make labour attractive to the idle rich

to work out the economic salvation of the country. Have we such a reformer in Mahatma Gandhi? Or is the social conscience going to be aroused in some other way? Will the press do this?

Harrington Emerson, the efficiency expert of America, estimates the daily wastes going on even in go ahead America as under. In August 1919 number of Industrial Management, we have;

"The war expenditure of United States has been 35,000,000 Dollars a day. An estimate of the daily loss from neglect of the five great moralities is more than six times as great.

Unrighteousness	\$ 35,000,000
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which caused the war.

Lack of Hygiene	\$ 60,000,000
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Unintelligence	\$ 67,000,000
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(or lack of education)

Industrial incompetence	\$ 50,000,000
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(or wrong ways of doing things)

Faulty assignments

Putting workers on wrong jobs

or preventing them from working

on what they are most fitted	
for. \$ 20,000,000
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Total	\$ 232,000,000

What is the total daily loss in India on account of neglect of these moralities here? Lack of Hygiene has given India such a high death-rate. Illiteracy and ignorance here are about sixteen times as much as in America. Industrial incompetence including idleness and ineffective ways of doing things is ever so much greater and so also faulty assignment. It is from this fund of daily waste, leaks and losses that the social engineer of the future will recruit his army for conquest of bread, shelter and clothing.

For an ordinary middle class city dweller it will be often helpful to work out the percentage of his income spent on rent and clothing and see how many hours' labour of his goes to supply him with these necessities and how many would go, if there were an organisation for direct supply.

Villages after villages need be patiently studied to find out our enormous wastes of human energy daily going on and reclaiming them for the good of ourselves and our country-men. It will be only when the ideals of social efficiency catch on and there are economic associations in every village with chief economic executive to find out the best, easiest and quickest ways of meeting the ascertained needs from the available human and natural resources that our conquests in these directions would proceed apace.

CHAPTER XI.

NATIONAL WELFARE AND NATIONAL DECAY* A REVIEW.

Civilizations rise and fall. What was it that led to the birth, growth and decline of the Roman Empire, of the glory that was Greece, of the Persian grandeur, of the yet earlier civilizations of Egypt and Babylon, India and China? Here is the ever recurrent phenomenon of growth, arrest and decay, of 'cycles of civilization,' of 'revolution of civilization' as Prof. Petrie would put it, of 'parabola of peoples' as Prof. Mc Dougal prefers to call this rise and fall of the curve of civilization. To promote national welfare, to postpone national decay this curve must be studied and accounted for.

Why indeed this arrest, decay and decline? Is this decay due to change in the climatic factor, to change in tools and technique, to

* By William McDougal, Pub. Methuen & Co., Ltd. London 6/-.

change in the Economic conditions as Geographic and Economic determinists maintain or is it due to a change in the population elements, a lowering of the population quality? Prof. Mc Dougal is inclined to the latter view. He begins by quoting Prof. Petrie's theory that every cycle of civilization is initiated by a blending of the two races, that this gives to the blended stock a new energy which carries it up the scale of civilization that after about 1800 years this effect is exhausted and that in consequence of loss of vigour decline inevitably sets in. Leaving aside the question of origin and growth of fresh cycles as being too obscure, Prof. Mc. Dougal essays in this book to analyse with a view to avert the causes of arrest and decline of a civilization. Very briefly put his thesis is that every civilization by reason of its increasing complexity makes constantly increasing demands upon the qualities of its bearers and that at the same time the qualities of those bearers tend to diminish or deteriorate rather than improve, and so a time comes when the nation's supply of high grade-

men is not equal to the demand and the nation or civilization there after declines.

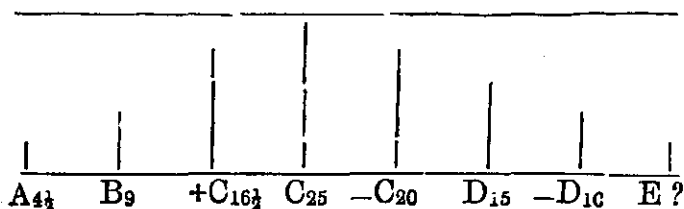
Why does the demand for a high grade population increase as the civilization advances and how does the supply of high grade population tend to decline? With advancing civilization a higher grade population becomes increasingly necessary to withstand the temptations of increasing leisure and added opportunities of amusement, to cope with the increasing complexity of wider and more varied personal relationships, to choose wisely between conflicting varieties of customs, traditions and beliefs with which the civilization is brought in contact. At the same time the supply of high grade population, or the population quality tends to decline because of the danger of reversion through race mixture, because of the lesser likelihood of transmission of freshly acquired characteristics under artificial urban conditions, thirdly because of the disappearance of the rigor of natural selection and the dysgenic effect of military, economic and urban selection. The towns act as vortices which suck in the

best of the population drain the country of its best blood and destroy the selected strains. Economic pressure and higher standards of living make the most prudent and provident limit their progeny, war destroys the best and bravest.

Thus slowly and insidiously the race is replenished from the bottom and dies off at the top. The population quality declines. The supply of high grade men is not equal to the demand for them and the nation or civilization decays.

What then is the remedy? To realize that education can only develop but not augment the innate intellectual and moral capacity of a people. To realize that society is stratified, that native intellectual and moral endowment is greater in the upper strata than in the lower. To realize that the social drama is dynamic, that the actors keep changing. To realize that if the 'reproductive contribution' of the lower strata goes on increasing while that of the higher declining, a low grade population will result. To put it

concretely the army tests in America reveal the fact that the curve of distribution of intelligence in the young manhood there runs as in the figure below :



In the rating used in reporting the results of this testing, A men are of the grade which "has the ability to make a superior record in a college"; B men are "capable of making an average record in a college"; C men "are rarely capable of finishing a high school course." The main bulk of the population is below the C+ level. That is to say, the results of the army tests indicate that about 75% of the population has not sufficient innate capacity for intellectual development to enable it to complete the usual high-school course.

"The civilization of any country depends on its continuing to produce in fair numbers,

men of the calibre of the A and B classes. If the A men and B men do not maintain their numbers while the population continues to grow, it means that the nation is breeding from the bottom and is dying off at the top. This lowering of the grade of population would spell national decay. National welfare then demands that every wide measure of social legislation, every custom and social institution should be judged and evaluated with reference to its bearing upon this problem, viz., its probable effect on the anthropologic constitution of the nation."

To encourage breeding from the top instead of breeding from the bottom, Professor McDougal suggests "that among the selected classes, the salaries should be supplemented by an increment of 1/10 for every living child below the age of 20. That for this purpose a national fund should be created, partly by the Government and partly by the public spirit and beneficence of rich men. Thus only could be saved the remnants of the old professional classes which being the product of a long

process of selection, has been the repository of a very large proportion of the best qualities of the British stock and the source of most of the leaders in most departments of the national life."

What is the message of the book for India Professor McDougal asserts that India has a low grade population? 2. That 'as compared with their British rulers, the natives of India are relatively defective in character or will power' though intellectually their equals (P. 85) 3rd that the people of the tropics are characterised by improvidence and that to some extent this is true of Indians as well. (P. 129). What is really needed is an anthropometric survey by the methods of mental measurement, to see how mental and moral endowment is distributed in different social strata. To keep in view the respective reproductive contributions of the higher and lower strata. To increase the reproductive contribution of the upper social layers and decrease that of the lower and thus to improve the population grade. We need mental measurements to confirm or refute Professor

McDougal's findings. We need emphasising the importance of Eugenic marriages—the importance of marrying character, intelligence and health, instead of marrying wealth regardless of age, health, intelligence and character. Registration of family histories and preservation of selected strains should be the national aim. Those interested in these problems of national welfare and national decay should carefully study the thoughtful contribution from the pen of Professor McDougal and consult freely the books on Eugenics suggested in appendix VI. Then will the people realize the disastrously dysgenic effects of thousands of the most forward spirits rotting in jail as political criminals. Will India awake?

By way of a critical appreciation it may be pointed out that National Decay cannot be truly accounted for by emphasis on a single factor, however important. That the anthropological explanation of the decline and fall of a people is as one sided as the mere Geographic or Technic or Economic or Political

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explanation. But granting the theory of anthropological decline as important, granting the necessity of continuous recruitment of a sufficient percentage of A grade population, it has yet to be proved how far its birth is confined to A-grade population alone. The army tests have not been Eugenic surveys to determine the contribution of different social strata to the make up of the A-grade population. The problem for national salvation is to encourage a prolific A-grade strain, might this not be possible by grafting A-grade mental and moral stature upon a prolific and vital strain, by judicious cross-breeding rather than inbreeding advocated by Prof. McDougal? The most favoured nations are not pure breeds but cross-breeds and further judicious cross-breeding may bring forward even a higher type into existence. Inbreed for stability but cross-breed for variety, inbreed for conserving the best but cross-breed for progressive betterment. Such seems to be the verdict of Biology. The spirit of caste, the spirit of restricting the marriage zone, encouraging parentage in the

favoured type ought to be tempered by the spirit of judicious cross-breeding for encouraging favourable variations, and general cross-breeding for purposes of race assimilation, to create a world nationhood instead of a caste classification of peoples and races leading to race conflicts and world wars yet to come.

CHAPTER XII.
VITAL EFFICIENCY.

or
Conquest of Disease.
and
Postponement of Death.

Next to considerations of Economic Efficiency we might consider the achievements of a people in promoting, health and postponing death. Social Efficiency here as in other departments will be measured by the ratio of actual health, longevity and birth-rate to the reasonably attainable maximum of health, and longevity and multiplication.

The most efficient society is that which has the highest average length of life, highest rate of survival and lowest death rate.

The following table of vital statistics of various countries is a fair measure of comparative vital efficiency so far as birth rates and death rates go.

VITAL STATISTICS.

Country	Deaths per 1000	Births per 1000	Remarks.
New Zealand.	9.8		(Death rate lowest)
Holland.	12.8	98.1	
Denmark.	13.	96.7	
United Kingdom.	15.6	98.9	
Belgium.	14.8	94.6	
Russia.	18.8	99.9	
German Empire.	18.6	96.8	
France	17.8	19.	(Birth rate lowest)
Italy.	18.2	82.4	
Norwa.	21.1	86.	
Spain.	21.8	82.	
Roumania.	22.9	42.4	(Birth rate highest)
Hungary.	23.2	36.2	
India.	20.	27.	(Death rate highest)

The average span of man's life was calculated as follows some years back:—The average lifespan in India is about 23.

EXPECTATION OF LIFE

Country.	For Males.	For Females.
Prussia ...	43.1	45.2
Italy ...	42.8	43.1
England ...	44.1	47.8
Belgium ...	45.2	48.9
France ...	45.7	49.1
Denmark ...	50.2	54.7
Norway ...	50.6	54.1
Sweden ...	50.9	53.6
New Zealand ...	54.4	57.2

From these it is abundantly clear, we here in India have the highest death rate and lowest

length of life or in other words that our vital Efficiency is extremely low.

In western countries and America the death rate has by scientific sanitation been greatly reduced and life average increased. Thus in the year 1866 the death rate of New York City was 34 per thousand. In the year 1912 this rate had been reduced to 14.1 per thousand. It was calculated that twelve years were thus added to the length of the average human life in that city.

What has been done elsewhere should encourage the social engineer in India to attempt here as well. The ideal indicated in the daily Vedic Prayer runs. "May we live for a hundred years, may we see for a hundred years, hear for a hundred years etc." The reasonably attainable maximum may not be that much, but threescore years and ten. The proved maximum average has been 57 while ours is 23. Here is work for earnest souls to do.

Social efficiency requires finding out the facts first of all. So the student of the social efficiency should find out the birth rate, death

rate and average longevity figures for his community, village or city. Let him graphically draw mortality curves for his community for different months, different diseases, mortality curves for males, females and children. These will help to rouse his conscience and may be used for helping to rouse the conscience of the community.

Let him find out the oldest living males and females in his village or city and hold them and their ways for example before the groups. Let him find out the youngest dying and help to render early death impossible in his community by better preventive and curative methods.

The method of Efficiency is to bring the average up to the standard of the discovered best of the locality or outside. This should open an area of investigation and effort for the socially minded, and rich will be their reward if they move in the matter properly.

Charts like the following will be great eye-openers to the community.

360 Babies die every hour.
86,000 „ „ day.
3,153,000 „ year.
and
one half of these deaths
are preventable.

Organize a health association for your group which may take up the work of educating the group in preventive methods helping it by public health methods and medical aid in case prevention has not been successful.

Avoidance of congestion, better sanitation, better recreation, parks and playgrounds, better knowledge of health and hygiene, better medical aid will pull the community out of low vital efficiency to high vital efficiency.

Social efficiency in this direction means the finding and taking the best, easiest and quickest methods to vital efficiency. This will require the finding of the healthy, longest lived and how they manage to do so, the

finding of what people die of, what infants die of, what women die of and what men die of and how far such deaths and diseases can be prevented. How far an educational campaign is needed and will be helpful? the best way of carrying such out etc. How far public health methods, better municipal sanitation would help? How far popularizing cheap local home remedies for prevalent diseases would be helpful? Get the medical practitioners to associate and give each month the prevailing diseases of the season and how to combat them. After ascertaining general causes of ill health and early death, ascertain the special causes such as deaths from malaria, plague, cholera, snake-bite etc. Find out the methods of combating them.

Better maternity methods, better care of babies, clean water supply, milk supply, food-supply, clean and commodious surroundings, better sewage and sanitation, more parks and play grounds, better knowledge of principles of hygiene, cheaper remedies and medical aid of sick—all these are methods of increasing the vital efficiency of a people. Graphs would aid

in bringing home the facts to large number of men at once and thus prove as incentives to communal cooperative action.

By way of practical suggestion it may be mentioned that the social worker should see:—

1. That books like the following are in the local library and that their circulation is stimulated.

Truby King-Feeding and care of Baby.

Baily and Coleman-First course in Biology-especially human physiology portion.

Moore's-Family Medicines.

Waring's-Bazar Medicines.

Birdwood-200 Recipes of harmless Indian Drugs.

2. That local knowledge about prevention and cure of prevalent disease is collected and conserved and circulated. Is it not wonderful that men like Birdwood Principal Lucknow Medical college, Waring, Dr. Dymmock etc., should tell us about the use of our own despised drugs? There should be more of our own writers on Indian drugs, for efficiency prefers the use and service of the nearer in

preference to the more remote. It is better to use knowledge and materials available next door in preference to similar knowledge and materials from afar.

3. That after full use is made of local knowledge and local remedies one should supplement it by all knowledge and remedies from whatever source obtainable for the good of mankind. All helpful, truthful achievements of all climes and times, should be welcomed and our best ideas exchanged with them. Ideas are cheapest imported. Materials require labour to move and modify, so it is a saving of motion and modification and a source of employment and enrichment if local materials are used.

4. See that inexpensive games are revived and gardening proclivities and peasant pursuits fostered.

For further suggestions read Dr. Fleming's 'Social study, service and exhibits Chapters V, VI, VII & VIII and go over programme of items in achievements of promotion of health as given in Prof. Small's schedule. (General

Sociology').

5. Calculate the economic loss that has occurred and is occurring to your family locality, village or city on account of diseases and early death.

Through loss of wages on account of disease.

Through loss of wages of those who care.

Cost of treatment at home.

Cost of treatment at hospitals.

Cost of funerals.

Loss of speed and strength (to workmen).

Less hours of work.

Loss of the family through disease and early break down of the health of the earning male members.

Loss to children through lowered vitality of the mother.

Loss through education prevented on account of early death of parents etc.

It will be found that the total daily loss through preventable disease and death is a great deal more than the loss of a people carrying on war. Therefore war with disease and conquest over the greatest common enemy

of mankind is the most economical and most paying of wars for a peaceful nation. Therefore to war with disease and early death in self and others, that is one of the ways to social efficiency.

Sir George Newman, chief medical officer of the ministry of health London in his excellent book entitled, "An outline of the practice of preventive medicine" thus lays down the principles and programme of Preventive medicine so necessary to vital efficiency. The objects of preventive medicine are.

"(1) To develop and fortify the physique of the individual and thus to increase the capacity and powers of resistance of the individual and community.

"(2) To prevent and remove the causes and conditions of disease or its propagation.

"(3) To postpone the event of death and thus prolong the span of man's life.

"In brief outline, the provisional articles of a national policy in preventive medicine, the principle elements in an ordered sequence, may be named as follows :-

- i. Eugenics and the principles of sound breeding.
- ii. Maternity and the care, protection and encouragement of the function of motherhood.
- iii. Infant welfare and the reduction of infant mortality.
- iv. The health and physique of the school children and adolescents.
- v. Sanitation and an improved personal and domestic environment.
- vi. Industrial hygiene, the health of the worker in the workshop.
- vii. The prevention and treatment of infectious disease.
- viii. The prevention and treatment of non-infectious disease.
- ix. The education of people in hygiene.
- x. Research, inquiry and investigation; and the extension of the boundaries of knowledge."

All these are very helpful in improving the general vital efficiency in India. But we must never forget that these are applicable to

a famine free country. But India is subject to famines. Poverty here is one of the most potent causes of disease. Poverty and deficiency diseases have here to be attacked through the economic and political channels, and thus only can we thoroughly improve our vital efficiency.

CHAPTER XIII.

ECONOMICS OF EDUCATION.

THE NEW EMPHASIS ON THE HUMAN FACTOR.

In the days when I learnt my economics under Prof. Hodiwala, books like that of Prof. Fawcett frankly discussed, whether a teacher's labour was productive or unproductive. The idea of productive labour in those days appeared to be the narrower notion of rendering available utilities fixed and embodied in material objects. Poor Fawcett was thus at pains to justify that a teacher's labour was productive. However economic notions have undergone revision and the rendering available of utilities fixed and embodied in human beings is coming to be, and will in time to come, be regarded as the most productive labour. In Ruskin's phrase people are coming to feel that the "manufacture of souls" the fashioning into fairness of human minds, the evoking the best in them, is the most important branch of human industry. With Hobson we have had

the notion of "Human capital" emphasised, so that now in the extended notion of economics we may well deal with the manufacture of souls, the problem of developing the possibilities and potencies of knowledge, skill and unselfish service lying latent in each soul.

Nay what is more, the centre of importance in economic emphasis has shifted from money and mechanism to man and it will not do for the sociologist to say as against the economist, that sociology is the science of welfare as against economics the science of wealth, for has not Prof. Pigou given us the "Economics of Welfare"? Conservation of human capital, conservation of human resources is now mentioned side by side with the conservation of natural resources in books like the "Foundations of national Prosperity," by Ely, Carver and others.

THE PROBLEM OF ECONOMICS.

It is therefore in the fitness of things that I should bring forward the Economics of Education for consideration before the mem-

bers of the Indian Economic Society. What do I mean by the Economics of Education? In the words of Bastiat "Wants, efforts and satisfaction that is the circle of Economics." In common parlance economics is concerned with the study and effecting of economics. In the words of Carver, the central problem of Economics is the problem of income and expenditure. A more effective way of looking at the thing would be to say that *economics tries to study in order to reduce the ratio between costs and results, between expenditure and output, between effort and satisfaction.*

This extension of the definition of economics, as the endeavour to study in order to reduce the ratio between costs and results was suggested to me by the study of what is known as "Scientific management" or Efficiency. The aim of that study is 'finding and installing methods of least waste,' or the finding and taking the best, easiest and quickest ways of doing things. That exactly, thought I, should be the aim of economics. Economics deals with production, exchange, distribution, and

consumption of commodities and services, but in all these processes there are costs in men, materials and equipment on one side and resultant satisfaction of needs on the other. Is not the problem of economics then the problem *to study, in order to reduce the ratio between costs and results?* Having thus defined the problem of economics I shall indicate where, exactly, in the field of economics, does a discussion like the present, come in.

THE FIELD OF ECONOMICS AND THE PLACE OF EDUCATION THEREIN.

Carver thus charts out the field of economics. He divides economics into Private and Public, and then Public economics into State and Social economics. Private Economics has its two fields. (I) Business economics concerned with getting an income, or reducing the ratio between effort and income, (II) Domestic economics, or spending the same or rather reducing the ratio between spending and satisfaction. Then we have State economics or finance and there too the real problem is to

reduce the ratio between the effort and the required resultant of getting the necessary funds to run the government and then on the spending side reducing the ratio between expenses and satisfactions. But beyond this narrow field of finance there is the wider field of Social economics concerned with the welfare not of a single family, nor the budgets and balances of the governing portion of the community but with the welfare of the community as a whole, and it is here that the most important item is education. Economics of education forms a very important chapter in Social economy. It is concerned with imparting knowledge, skill and virtue, precious social heredity to each succeeding generation.

EDUCATION, A PROCESS.

By Economics of a process then we mean the analysis of its need-effort-and resultant satisfaction cycle with a view to reduction of effort and increase of satisfaction. Now Education is a process and as such its economic aspect can be isolated and made a subject for

study. It aids the development of utilities and excellences, the latent possibility of noble personality and effective individuality capable of being developed in human beings, thus increasing the value of the human capital of a country and the sum total of satisfactions derivable from material and human resources. It enables the people to extract appropriate, transform, transport and wisely use such material resources as may be available in their territory. It enables the people to preserve, transmit and promote their human heritage of knowledge, skill and virtue. It enables them to lead noble and more adjusted lives in relation to one another so as to increase the sum total of life values.

THE GREAT NEED OF EDUCATION.

Education is a universal human need. Without it humanity would slide back into barbarism and savagery. Without it we would get back into the paleolithic caveman stage. Without it the present population cannot be maintained on this planet. With it and with

better and greater education humanity may march on from its present stone age of politics to an electric angelic age of world-wide harmony, of peace on earth, goodwill among men, the real democracy of the spirit where there will be no white man's burden nor black man's, no yellow peril, no white terror nor red, no slave traffic nor mammon's sway.

THE ECONOMIC ASPECT.

The essential formula of the economic aspect of the educational process, the great universal need would be the progressively definite ascertainment for each territory of the need and how far it is satisfied, the progressively definite ascertainment of the available efforts and resources and the portion utilized, a comparison of the cost in apparatus and human effort of different ways in which children and adults are educated, the knowledge of such modifications of method and selection of means as will lead to better results with less effort, the estimation of actual result and their comparison with the reasonably attainable

maximum. We have thus to concentrate on the need, resources, effort, method, cycle of the progress for each locality, region, province and people.

THE EDUCATIVE PROCESS UNCEASING.

It is important to bear in mind that the educative process goes on unceasingly throughout life. The minimum requirements of the process are environment and men hungry, active, observant, communicative and interpretative, capable that is of seeing, handling, saying, hearing and understanding. In the words of the poet.

'The—eye it cannot choose but see
We cannot bid the ears be still.'

And similarly love and hate, joy and grief, pain and pleasure break forth into language. Greater need draws better deed. Here then are the spontaneous beginnings of education and here its spontaneous continuance throughout active life. All that systematic education does, is to direct this process in fruitful channels, to provide access to the collective recor-

ded knowledge of humanity, to organize, speed up and render efficient the spontaneous process.

THE PROBLEM.

The problem is, to direct, energize and accelerate this spontaneous process at all levels. In the language of efficiency our problem is to find out and take the best, easiest, quickest and most satisfying ways of educating all members of a society, *i.e.*, its males, females and children. Looked at in another way we have to see that social effort and social recognition stimulate, guide and help each individual to be educated up to his best.

The educative process is started by individual needs and helped by social efforts and social recognition. Education may thus be looked upon as accurate responsiveness to environment which is comprehension of what one sees and hears and effective reaction to environment, *i.e.*, control thereof for the interests of self and society and the universe. A society educationally efficient is one that develops this communion with and compre-

bonique and control of environment to the best and greatest extent, *i.e.*, that which educates all its members in the best, easiest and quickest way.

DEFINITION OF ECONOMICS OF EDUCATION.

In short by economics of education I mean the effort to minimize the cost, and maximise the output of education. This can be done by detecting, locating, eliminating waste in existing institutions, by comparing the different institutions doing the same work and bringing the least efficient, on a level with the most efficient.

2. By applying the resources thus saved for furthering education.

3. By listing the available educational resources and finding what portions of them lie, unused, half used or unused.

4. Finally by evoking greater effort to satisfy the still existing portion of the need.

Or still more briefly, minimising the cost and maximising the output of education, by making the best and utmost use of actual and

available resources, with a view to putting within the reach of all, the highest education they are capable of.

INDIA'S EDUCATIONAL NEEDS AND RESTRICTED RESOURCES.

The educational needs of India as regards the spread of literacy, science, and skill, are so great and our resources so restricted that it would be criminal to ignore or obstruct the the application of these principles, on any ground whatsoever. Where 94 out of every 100 are illiterate, and of the literate even, so many are ignorant of the barest elements of science, or scientific procedure, where skill is not being preserved, promoted or sufficiently transmitted, we are entitled to make the most economical use of what little resources we have, and to insist in the annual reports on education, on reduction of educational cost per unit, and not merely increased allotment.

POSSIBLE ECONOMIES.

In the light of these principles let us examine the economies that are possible, in the

management of our educational resources. We shall examine in turn the management of our educational resources from the highest to the lowest, and detect, locate and suggest the elimination of wastes and propose policies that are likely to extend the sphere of usefulness of these resources. This appears to be the correct order of treatment, for the greatest wastes are likely to occur and go unquestioned more frequently in the higher departments, than in the lower on which the first brunt of economy generally falls.

EDUCATION IN THE BOMBAY PRESIDENCY.

What then are the facts and the proposals? Let us consider the state of affairs in Bombay. We shall take the Director of Public Instruction's report 1920-1921. We find there are about 7½ lakhs boys and 2 lakhs girls studying in all the schools and colleges. Taking the boys we find that 88·3 per cent. study in the primary, out of whom only 10·7 reach the secondary, and only one per cent. of the total reach the college. "Out of every

1,000 of the male population only 71 boys and young men were receiving some sort of education, the corresponding figure for the female population being 20. In an educationally advanced country these figures, we are told, will be from 120 to 150 per thousand." From this it appears that 50 p. c. of the boys and about 85 p. c. of the girls are going without any sort of education. It will also be seen that 9 out of every ten drop out in the transition from High school to College. From page 50 of the report we find that out of 5,570 who reached Matric and Final only 2,391 passed, and out of these only 1,067 reached the inter arts or science stage, out of whom only 611 got through. If the laws of large numbers are true, the American Army tests reveal that out of every 30 that pass the High school stage $13\frac{1}{2}$ may be expected to get through the graduation test (see page 163, McDougal's National Welfare and National Decay). That is out of these 2,319 students we should have had 1,043 instead of 611 Intermediates, that shows that 40 p. c. ability of the higher sort

remains undeveloped, through defective social arrangements, and 50 per cent of the boys, and 81 p.c. of the girls of the school-going age are even now going without receiving any sort of schooling. To what is this due? To paucity, insufficiency of educational resources, and the restriction and insufficiency of the resources at our command. 40 p.c. of those able to pass a college course are kept back because most of them have no institution within easy reach. There are only 18 colleges to take care of the output of 144 high schools. Some of the chief reasons why higher education is throttled, are that colleges are too few, not within easy reach of the students, and that college education is expensive.

UNIVERSITY REFORMS.

What may be done to remedy this state of affairs? What is the way of maximising education, minimising the cost and putting higher education within reach of all able to take advantage of it? The University must be improved.

MAXIMISE UNIVERSITY FUNCTIONS.

The University must analyse its functions, maximise them, while trying to minimise the cost per unit for different orders of service rendered. Analysing the functions we find that the least that a university can do is to lay down courses and test those who offer to be tested in them. Beyond this, a university has to recognise and affiliate institutions that claim to provide facilities for the teaching of those courses. Thirdly it may start teaching institutions of its own. And lastly it may demand unsolved problems from the community and stimulate research in the solution of those problems. To prescribe courses, to examine candidates, to affiliate institutions, to teach, and to conduct research to advance the bounds of knowledge, these than are the functions of the University. These have to be maximised.

**TO MAXIMISE TESTING FUNCTION, SEPARATE
THE TEST QUALIFICATION FROM THE
TERM QUALIFICATION.**

Taking self education for a fact and recognising that life affords varied opportunities for learning at all levels, and desirous of stimulating educational effort, individual, expert and institutional at all levels, the university as a great mint for assaying and recognising educational effort, may work the programme of setting syllabuses, examining, and granting degrees to those who pass, no matter where and how they reached that level of attainment. The terms qualification should be separated from the test qualification, which latter may be attested by a separate certificate from the Colleges or Professors affiliated. Maximising the stimulating effect of an impartial social recognition, it may open its doors to every one, who cares to have his educational attainments tested and certified as passable among the community.

In a country or society which sets to itself the question of diffusion and advancement of knowledge, the universities would keep this function, of setting syllabuses and holding examinations and granting degrees and diplomas distinct and work it for all it is worth. Teaching institutions and teaching groups may then be as diffused as required, provided the standard to which the community wants its teaching in every line to reach, be clearly set and the testing or examination process be also standardized. This will help the diffusion of higher and varied education to a degree little recognised now that the universities have prescribed artificial restraints like keeping of terms, etc. Thus from among the grade of Matriculates one of the reasons why so many drop out is that there are not sufficient facilities for carrying on higher education in the places to which they belong and because there are artificial restrictions to private efforts.

A place like my native city of Shikarpur, with its more than a dozen graduates, would,

if artificial restraints on higher education, were removed, soon begin to produce graduates from among its matriculates. Were we honestly to analyse the minimum requirements of the educational process we would find that they reduce themselves to Teachers, Text Books and Taught, with a reference library of a few hundred volumes and in scientific subjects a laboratory table for every 2 students.

For some subjects like literature and history the matriculate may, if he is sufficiently keen, come up to the standard required by means of commentaries, notes, etc. Now since the ultimate graduation test is that of a written examination, why should not the student be allowed liberty of means of pursuing his higher studies provided that he satisfies that prescribed test?

But for the unessential requirements of the University the insistence on a substantial fund, Arts Colleges would perhaps have been started and worked satisfactorily for all they are worth at Hyderabad and Shikarpur, Sind and surely at many such similar places. If the Arts education is a good thing and it is

surely so to a degree—why not throw open the opportunities to as many as possible? Why restrict them to a few so as to give the degree an artificial monopolistic value?

Such a university then that was desirous of diffusing and advancing higher education would begin to collect and lay down the most approved syllabuses for a vast variety of professions. Thus there will be courses on subjects such as :—

Accounting	Engineering
Agriculture	Medicine
Architecture	Pharmacy
Liberal Arts	Dentistry
Fine Arts	Forestry
Commerce	Law and Journalism
Domestic Science	Music
Education	Mining

On useful arts such as those offered by the City and Guild's Institute, and on such as are tackled now by the International Correspondence School, *e.g.* :—

Advertisement writer	Book cover designer
Agriculturist	Book-keeper
Architect	Bridge-engineer
Blacksmith	Builder
Boiler maker	Cabinet-maker

Carpenter	Mine Electrician
Carpet-designer	Mine Manager
Carriage Builder	Mine Surveyor
Chauffeur	Motor Engineer
Chemist	Motor Mechanic
Civil Engineer	Moulder
Coke-Oven Manager	Pattern-maker
Concrete Engineer	Poultry Farmer
Cotton Worker	Quantity Surveyor
Designer, General	Railway Engineer
Draughtsman	Refrigeration Engineer
Dynamic Runner	Riveter
Electrical Engineer	Salesman
Electrician	Shopkeeper
Engine-room Artificer	Sheet Metal Worker
Engine runner	Shift Engineer
Erector	Shorthand Typist
Farmer General	Show Card Writer
Fireman	Sign Painter
Forgeman	Smelter
Foundryman	Stationary Engineer
Fruit Grower	Steam Engineer
Gas power Engineer	Structural Engineer
Heating and Ventilating Engineer	Surveyor
Illustrator	Telegraphist
Joiner	Telephone Operator
Letterer	Templator
Linoleum Designer	Toolmaker
Marine Engineer	Vegetable Grower
Mechanical Engineer	Wall Paper Designer
Mechanic	Window Dresser
Metallurgist	Woolen Worker
Metal Miter	Wireless Telegraphist

Were learning set free from its trammels in this way education would be diffused and

advanced at a rate very much faster than it is being advanced and diffused under the present system of artificial restraints. Thus both in variety, *i.e.*, in the range of its studies and quantitatively, *i.e.*, in the number that it reaches, the modern Indian University is so inefficient. Its use efficiency as an instrument of diffusion and an institution for testing is so very low.

MAXIMISE PROFESSORiate BY AFFILIATING
INDIVIDUALS AS WELL AS INSTITUTIONS.

For maximising education, besides recognising and testing external students or any student who offers himself for test, the university should maximise teaching facilities by affiliating, not only institutions, but groups of teachers, and even individuals, who come upto a certain standard. Every M. A., every distinguished author, every one who produces an acceptable thesis may be recognised as a private Professor and authorised to give a term certificate to those who get training under him. The few colleges that we have, cannot employ

all men of merit; why deny the opportunities of a teaching career to those who are otherwise fit? We learn by teaching, and this will open the opportunities for keeping up educational endeavour to many a graduate, while at the same time it will enable us to duly diffuse our teaching power throughout our land of large distances. Thus may learning and teaching opportunities be maximised. While the freedom to be tested will standardise attainment, this freedom to teach will individualise, in this varied affiliation will introduce the domestic system of higher teaching, where the personal contact of a teacher will be able to organise thought at a higher level—witness the great historic sequence of three individual teachers, Socrates, Plato, and Aristotle.

. That what I propose is in part actually done by the London University may be gathered from the following remarks culled from Thwing's 'Universities of the World', page 29:—

"The (London) University still recognises two classes of students, known as external and

internal. External students are those who enter in order to pass certain examinations. These students take on a very wide relationship. For the university has conducted the examinations not only in London but also in the colonies—Internal students are obliged to spend at least three years in London, and to take such courses for the bachelior's degree as are approved by the senate. These courses are usually offered in some one of the confederated schools of the University, or under teachers who are recognised by the Senate. There are now about 5,000 internal students and nearly a thousand recognized teachers."

TO MAXIMISE ITS TEACHING FUNCTION
THE UNIVERSITY SHOULD INTRODUCE
CORRESPONDENCE COURSES.

So far as the teaching function of the university goes we have as yet done very little and what little is done is also done in such a wasteful fashion that the maximum advantage is not secured to

the country. Thus in the Post—graduate teaching that I have witnessed being carried on in the Bombay University we find the lecturer, having an attendance of anywhere between 5 to 20 students and the effort thus totally lost to other students far away or not able to come to the university hall at the particular hour from the total area of 123,064 square miles which this single university serves. And this goes on in an age when the printing press has made recording so easy and cheap. This goes on in our age when teaching by correspondence is regularly carried on for several subjects, by the advanced universities of America. Why not make all post-graduate and for the matter of that even graduate teaching transcend the limits of time and distance by insisting on having it in the correspondence course form in addition to or supersession of the oral form which it takes, for tradition has so ordained it. But custom seems to chain down all of us even the advanced (?) universities so slow to learn, so slow to teach.

Efficiency concerns itself with maximising the best product with minimum labour and further with maximising the use of that product. Let there be more and better higher teaching and learning and let it be rendered available to more persons and for a longer time and this can be done through illustrated, copiously and precisely referenced, diagramatised written lectures graduated and compiled in a correspondence course form. The Universities whether Government or national, denominational or private should if they want to put their teaching product to maximum use immediately adopt this extended application of the invention of writing and quick postal facilities and not remain in the Homeric prewriting bardic stage, though of course within its limits making a full use of that device as well.

TO MAXIMISE RESEARCH THE FREE
UNIVERSITY SHOULD INVITE PROBLEMS AND
OFFER PRIZES FOR THE BEST SOLUTION.

What of the research work in Universities? Is research adequately stimulated and

rewarded and consciously directed to the solution of the most needed and crying problems, Physical, and Chemical, Biological and Psychological, Social and Political? Let the community and provinces survey their needs and see how far their thinking centre concerns itself with the problems arising out of their material, physiological and moral and social needs and the peculiar circumstances in which they are situated? Let them send their problems to the university for investigation and report, for verdict and guidance. If the universities are not instruments for discovering what is most necessary to be known, in the areas served by them, for clearing their doubts and difficulties and giving them dependable data and information, they are clearly not seats for the advancement and diffusion of the most necessary and desirable knowledge and skill but simply instruments to serve narrower governmental purposes. They simply show a capturing and subordination of the spiritual and guiding power by the providing and protecting

temporal power, the state. This is an inversion of right relationship. The brain must co-ordinate and command the nutritive and active functions and not be subordinated or commanded by them. It must be left free to investigate and counsel and leave the state to support and carry out. It is this capturing of the universities by the state that is to be deeply deplored. Let the affections of women and the energy of the people be the twin aids to the independent and free intellectual power of the professoriate and thus aid the university to curb and counsel the rulers and the chiefs, the custodians of Temporal power from losing their balance or falling a prey to their low levels of a dull deadly order that crushes out all progress in the effort to prevent all motion and commotion, indicative of unrealised ideal goals. If the military command the civil and civil, the spiritual, power social efficiency will be reduced and instead of co-ordinated, constructive evolution, we shall find discord and destruction and degradation. So the universities must be free, depending if at

all only on the referendum of the people and motherhood of the community. Let the university then first secure freedom and then invite undismayed the problems pressing for solution and work at them with all the resources at their command, investigating and giving to the public the benefit of their brain power.

TO MAXIMISE COLLEGES CONVERT GOVERNMENT
INTO AIDED COLLEGES.

Economics of Education aims at solving the problem of maximising education while minimising its cost per unit output, with a view to socialising education, the first test of civilisation. Besides maximising the functions of the University, it therefore, concerns itself with a comparative study of the Economics of the various institutions that draw on public funds. Colleges then are the next to be examined. Aiming at reducing the ratio between cost and output, when we examine the different colleges in the Bombay Presidency we find that for each scholar educated,

the annual cost to the Government, that is, to the public funds set apart for education, varies between Rs. 245—13—6 in the Deccan College to Rs. 14—0—5 in the New Poona College. Thus in Bombay in the Elphinstone College, an arts student annually taxes the public purse to the tune of Rs. 223—15—8, in the Deccan College, Poona, Rs. 245—13—6, in the Gujerat college, Ahmadabad, Rs. 108—15—1 and in the Karnatic college Dharwar Rs. 41—2—10. For these Government colleges the average cost to Government per student is Rs. 154-4-1. Comparing these with the aided colleges we find that the Wilson College does the same work and taxes the public purse only Rs. 23-1-2 per scholar, St. Xaviers college, 28-15-11. The Fergusson college 20-12-7. The New Poona college 14-0-5. The Dayaram Jethmal college 102-7-7. The aided colleges on an average tax the public purse only 28-8-7 per scholar, as against 154-4-1. That is if the Government colleges were to be handed over to Missionary or Education Societies' endeavour we can have 22 colleges instead of the present four, so as to

provide in different centers for the needs of 40,000 matriculates who are kept out mainly on account of paucity of colleges within easy reach.

THE LAW SCHOOL WASTE.

Another kind of waste that needs to be done away with in the interests of Social Economy is the running of the Government Law School. "The Government Law School," we find "had 673 students". It is the artificial restriction of term keeping that is responsible for bringing most of these students to congested Bombay, and keeping them in the rushing conditions under which they live here. Can it be honestly maintained that a graduate not able to pursue the study of law, aided by the few lectures that the school delivers? Graduates could, and did, and do and can develop into pleaders, without this nominal aid, which very few would care to take, if term keeping were not compulsory. What are the facts? The Madras University thinks, so I am told that four hours daily lecturing is required to develop

graduate into a pleader. The Bombay University thinks one hour's lecturing a day would be sufficient. The Chief Court of Sind thinks, that merely passing its Higher Pleadership test is sufficient to show that one has developed into a pleader, fit to enjoy the same rights as an L.L.B. Not many years ago, teachers were exempted from keeping Law terms, and some of our best L.L.B.'s in Sind were those who thus passed their L.L.B. without having kept any terms. In an exactly recorded field of knowledge such as Law, term keeping is hardly necessary for a graduate, and even if necessary, apprenticeship under a pleader, or attendance at the District local court would quite do. Why drag the students to congested Bombay? Out of these students the Government saves only Rs. 4569. Why not charge 8 Rs. per student as an additional fee, why create a monopoly value, deny recognition to those who cannot come to Bombay, and make the poor student pay an additional tax to the Bombay Landlord?

MAXIMISE TECHNICAL EDUCATION.

How? By laying down courses, and stimulating effort by public recognition of all who pass the required test, no matter how or where they acquire their knowledge. Let the examinations like the City and Guilds be held at all High Schools, let the medium of examination be Urdu and Hindi. Perhaps the best way of maximising Technical education will be to provide industrial Libraries of correspondence courses at every municipality, at least courses on industries prevalent in the city and neighbouring villages. The translation of these into Urdu and Hindi would be the next step for putting theory within easy reach of the practical worker. Utilisation of Railway workshops, extension of apprenticeship system and schools for labour, delivering of lectures on design and calculation in Urdu in all the Railway workshops, would help to maximise technical education at minimum cost. Every smith's shop, every carpenter's shop, every potter's kiln, every weaver's shed, every building construction, is a practical class for ex-

tending technical education, if the supplementary theoretical factor be supplied through the medium of a common language, and if the stimulus of recognition of merit howsoever acquired be there. Thus there is no reason why the terms required for a Boiler Act examination should not do for entitling one to appear at a corresponding examination at the Jubilee Technical Institute in Bombay. So many of the candidates who apply for admission at the Technical College are refused admission; why not open the way for them through recognition of apprenticeship, and through recognising the possibility of education through correspondence courses?

MAXIMISE SECONDARY EDUCATION.

1. through removing the term restriction,
2. through changing medium of instruction, Hindi for all scientific and modern culture, and provincial vernacular for local literature and humanities,
3. through handing over Government High schools to Municipalities, since Municipal schools cost only Rs. 10-3-11 per

pupil as against Government schools which cost 38-0-2, or nearly four times as much, 4. through affiliating private teachers, and so maximising teachers, and introducing the element of domestic, individualising system of education against the factory and standardising method now adopted. After having economised and extended the facilities for high school teaching as above, we might further extend, diffuse, almost universalise secondary education through the adoption of monitorial system under which a single teacher like Dr. Bell or Lancaster could teach a school of three hundred pupils. Before universal education was provided for, from public purse this was the way through which every one was reached with higher education in America. The prime necessity of a civilized people, that of socializing and universalizing education, bringing education to the door of the poorest, resulted in the starting of such monitorial schools in America and the good service that they did is recognised by educationists. Historically they were the

precursors of universal education there, why may not India also take this step to smooth the transition ?

We might apply the same system of scientifically increasing the output of primary education while reducing the unit cost. Comparing the various ways in which primary education is imparted, we might universalise the best and most economical methods of imparting primary education. Monitorial system might be applied to the sphere of primary education. The example of Burma with its six times as high a percentage of literacy might be usefully adopted and adapted in different parts of India. A better use of temples, and temple resources would bring the whole of India to the level of Burma in the matter of literacy. However in utilising the motherhood of the nation lies the greatest available asset for universalising primary education. Let every educated man think it his sacred duty to teach his mother, wife and sister, and through them spread Montessori,[®] kindergarten, and primary education, so that every street be pro-

vided with a teaching mother taking care of the children of the neighbourhood. The private self-supporting schools found in Sind and Gujerat, need every sort of sympathetic encouragement and extension. Through them also lies our hope of extending primary education according to local needs.

CONCLUDING REMARKS.

I have tried to point out that the central problem of economics is to study and try to reduce the ratio between cost and results, that education is the transmission of the best social heredity to all members of a society, the imparting of knowledge, skill and virtue to every one according to his capacity, that the socialising of education is the first sign of an advancing civilisation, that to solve this problem for India, where our need is so great and our resources restricted, we have need of maximal release of educational effort by maximising the output and minimising the cost of existing institutions, by stimulating self effort and encouraging private effort to the ut-

most, by maximising teachers, and separating term qualifications from test qualifications. Strictest economy is necessary if education is not to be the monopoly of the few, but the birth-right of all born in a civilized community. The ideal I have sought to reach is putting education within the reach of all, for only then shall we be able to raise the quality of the human capital of this country, and be able to discover and develop the men of genius, who according to the intuitive estimate of Ruskin, and the statistical estimate of Odin, are to be found in all strata of society. It is the more thorough ploughing of the vast field of our human resources that will stimulate these hidden seeds of genius to sprout, and thus help forward human civilisation. The hidden village Hampdens, and the village Miltons have to be reached with the best of human heritage, and under our present circumstances I do not know of a better method of approach or solution of this vast problem, which educated India is called upon to solve—since this is now a transferred subject. The

principles I have tried to lay before you, also apply to maximal utility of other educational resources like libraries, and laboratories, the press and the platform, pageants and processions, folk drama, and culture drama, museums and lantern lectures, all of which have to be utilised at their best and utmost for the solution of this greatest social duty of civilised India—**Socialising and Universalising of Education.**

CHAPTER XIV.

ECONOMICS OF EDUCATION.

PART II—THE BEST OF EDUCATION IN THE SHORTEST OF TIME.

In the last chapter I have tried to point out ways and means by which education, the most important single process in social economy, might be maximised at minimum effort, equipment and cost. I tried to suggest several ways and means whereby we might expect to have a maximum of education at a minimum of cost. At the end of the lecture it was suggested by a kind friend that I should likewise essay to give at some other time a talk on the method of giving the best of education in the shortest of time. If extension of the best known methods was the key note of the first, the conscious improvement upon the best practice prevalent is the keynote of

the present. Extensive education was the aim of the first, intensive that of this. If quantity appeared to be emphasised there, quality will have special emphasis in this.

Our first quest here then is to find out the best of education. The quest for the absolute best, is not the quest we are after. Relative best is what would be more useful for our purpose. Social sciences are often prone to commit the fallacy of perpetualism and universalism. They should take a lesson from folk lore which says one man's food may be another man's poison. The idea of the best of education then is relative to the person and his surroundings. His surroundings again are of two sorts regional and social, so the best education is that which is most suitable to the person, and his regional and social surroundings. The ideal education then is that which conduces to the highest development of each individual and helps him to lead the most adjusted life with reference to his regional and social surroundings. An ideal system of education would then take note of the possi-

bilities of the region, group requirements and the aptitude of the individual.

Thus taking note of the regional factor we would say that there should be taught different subjects in rural, urban and coastal areas. Education should put a man in touch with his immediate environment, in touch with his nearer environment in preference to the more remote.

Thus Ruskin suggests dividing schools into three groups, (1.) 'Schools for children whose life is to be in the cities, for whom the special subjects of study should be as far as their disposition will allow of it—Mathematics and the arts. (2.) For children who are to live in the country, natural history of birds, insects and plants, together with agriculture taught practically; (3.) for children who are to be seamen, physical geography, and astronomy and the natural history of sea fish and sea birds.' (Time and Tide, Cabinet edition pp. 183-186.)

Next to the regional factor the ideal of relativity would require, that education in each case should take note of individual aptitude

and social needs. That education is the best which brings about the happy equation between individual aptitude and social need. Heredity gives an individual only general ability to learn a language, to grasp a science, to skilfully pursue an art. It is for social direction to develop this general ability towards the special requirements of the social milieu in which an individual happens to be born. The best education is that which makes the most of an individual's innate capacity ; for helping him to lead a healthy and socially useful life. Best education would thus give vocational guidance, would for the masses be in the vernacular, would be sufficiently varied and would make for a fair distribution of talent in all departments of social activity and not an overcrowding of some lines and starvation of others. The common elements of various occupations would be taught so that transition and transfer from one occupation to another may be easy. Rapid special courses would be provided to give the final touch or recruit quickly for any emergency needs. The best

education then would be relative to the region, relative to the social needs of the times, and relative to the individual's capacity, so as to enable each one to function freely and fully in his group.

But the best education besides being thus relative in its ideals will be psychological in its methods. It will be guided by Vou Baer's suggestive law of recapitulation, that the individual in the main outline repeats the history of the race. It will thus respect what James calls the law of transitoriness of instincts. Thus to quote James "In all pedagogy the great thing is to strike the iron while hot and to seize the wave of pupil's interest in each successive subject before its ebb has come, so that knowledge may be got and a habit of skill acquired—a headway of interest, in short, secured on which the individual may afterwards float. There is a happy moment for fixing skill in drawing, for making boys collectors in natural history, and presently dissectors and botanists, then for initiating them into the

harmonies of mechanics, and the wonders of the physical and chemical law. Later introspective psychology and the metaphysical and religious mysteries take their turn, and last of all the drama of human affairs and worldly wisdom in the widest sense of the term. In each of us a saturation point is soon reached in all these things, the impetus of our purely intellectual zeal expires, and unless the topic be one associated with some urgent personal need that keeps our wits keenly whetted about it we settle into an equilibrium, and live on what we learned, when our interest was fresh and instinctive, without adding to the store." (p. 404 James Psychology, Briefer Course.)

The famous author of "Adolescence" Stanley Hall, also recognises this theory of appropriate type of education being given at different periods of the individual's growth. Dr Partridge summarising views in his Halls "Genetic Philosophy of Education" gives us two chapters one on Developmental Stages and another on Educational Periods. The four main develop-

mental stages are (1) Infancy (2) Childhood (3) Youth (4) Adolescence. Infancy, the period from birth until the end of the second year, is specially a time of physiological development and sensory experience. Childhood from two to eight, is characterised as a time of imaginative activity. Youth from eight to twelve, is a period of practical adjustment. Adolescence is the period when the emotions dominate. Education should correspond to these periods. Infancy is the time for growth and sensory experience. Opportunity must be afforded for the use of all senses specially sight and touch. A few essential habits must be developed, such as regularity of hours of sleep and feeding, being alone, learning not to cry. Gradually the purely sensory stage is passed and the imagination becomes the center of training. Now for five years or more of childhood, the chief educational need of the child is that his mind be provided with rich culture material stimulating to the imagination, and that he should be left free to work this out and express it in free play. The child must now live through

the stage of myth making, and poetic fancy of the savage. The respective faculties must be steeped in nature lore, story, and natural religion. Motion like thought must be coarse and free. It must be fundamental, using large racial muscles rather than the finer accessory parts. Its one normal type is free play. The age from eight to twelve is the age when inner growth is for the time being slowed. This is the age for all mechanical and formal training. Technique has its day. Reading, writing, drawing, manual training, music foreign tongues, the manipulation of the number series, all kinds of skill have now their golden hour. The method of teaching may at this stage be mechanical, repetitive, dogmatic, authoritative, laying stress on drill and discipline. At adolescence again the aspect of all education must radically change. Once more the need is for free play of interest developing from within. Now as in childhood, feeding the mind must take the first place, and all drill and discipline must be subordinated. Two periods pedagogically different may be distinguished in the course of

adolescent development. The age of about eighteen or nineteen marks the dividing line. From fourteen to eighteen the ideal should be to extend the mind in all possible directions, and to the highest point of capacity on every side. The period of plasticity and variability must be prolonged to allow the many elements of the mind to struggle for supremacy. The second period of adolescence from eighteen onwards is the time for developing large intellectual enthusiasms. Now is the time for cultivating visions of ideal life, to allow mental excitement and enthusiasms, to lead the intellect on to positive points of view, rather than to encourage it to dwell on that which is merely critical. "This is the period for philosophy and religion." Let the spirit of approach be broad and constructive rather than critical. At this period the youth must act in social groups, if his enthusiasms are to be fully aroused and controlled. He must be a member of many societies."

To psychologise education, does not mean merely developing the many interests in their

right order of development, it means further that the teacher should follow the proper psychological sequence in all instructions. Stimulation, cerebration, impulsion and action must be duly developed and in right sequence. Thus some of the maxims of Pestalozzi were. Observation is the foundation of instruction. 2. Language must be connected with observation. 3. Time must be allowed for assimilation. 4. To knowledge must be enjoined power, to what is known the ability to turn it into account. 5. In each branch instruction must begin with the simplest elements and proceed gradually by following the child's development, that is by a series of steps that are psychologically connected. Herbart developed this side of Pestalozzi's ideas. His four formal steps in teaching are. 1. Clearness, i.e. the need of starting with a vivid impression, direct observation etc. 2. Association, connecting the newly presented material with the previous thought masses of the individual. 3. Systematisation or assimilation or generalisation, by which the material presented is

worked up into a new synthesis by the individual. 4 and finally Application, in which the principle developed is applied to new material. Education that is psychological in its method will thus develop the senses, imagination, ideation, emotion and activity. It would develop these at the proper time and in the best easiest and quickest way.

But the ideally best education will not simply be relative in its aim, psychological in its method, it will also be religious, and scientific, and practical and artistic in its content. Spencer was perhaps the first to emphasise the fact that an educationist must find out the relative importance of different subjects. He was the first to move the discussion, what knowledge is of most worth? As Ward has put it education must teach the most widely applicable truths, and those which are most practicable *i.e.* that can enable one to act on and modify his environment. Education according to Spencer should equip a man with knowledge of the laws of direct self preservation, next it should prepare for indirect self-

preservation, *i.e.* for earning a decent livelihood honestly and honorably, next prepare for parenthood, child rearing and family life, next for citizenship, or social and political life, and lastly for miscellaneous refinements of life, music, fine arts etc. Education must help a man to regulate his own life and helpfully co-operate with others, that is, it must have the religious note, it should give a man a knowledge of the order of nature *i.e.*, should be scientific, and it should invest him with power to evoke utilities and beauties out of his environment, *i.e.* should be practical and artistic.

And finally the ideally best education, should in its resultant lead to social concord, social co-operation and social progress. It must help the attainment and maintenance of just social arrangements, it must do away with social friction and social conflict, and evoke the greatest amount of beneficial co-operation, and create a dynamic society that preserves and promotes life values. Thus the ideally best education is relative in aim, psychological in

method, scientific and skill-giving in content, and socially helpful in resultant.

To me the ancient eightfold path of inner culture, as outlined in the Yoga Sutras of Patanjali has been suggestive of a comprehensive ideal of education. Inner illumination according to Patanjali is to be attained first and foremost, by leading the good life, through observation of (1) Yamas, and (2) Niyams, the decalogue of the Hindus. The two next steps to the attainment of inner illumination are (3) Control of breath (Pranayam) and (4) Control of bearing or correct posture (Asan) and finally through cultivation of concentration through (5) Pratyahar *i.e.*, abstraction, (6) Dhyan *i.e.* Attention, (7) Dharana, *i.e.* continued Meditation, till (8) Samadhi, or complete inner illumination is reached. Here then is a scheme that suggests keeping the commandments or leading the moral life, as the first requisite for training, that next brings in the factors of physical training the control of breath and bearing, and finally the intellectual processes of continued concentration till

illumination be attained. Thus the scheme is to me suggestive of the complete ideal of education being moral, physical, and mental.

But more. The decalogue, the five Yamas and Niyamas suggest to me comprehensive criteria of education. The first Yama, Ahimsa, corresponding to 'Thou Shalt not Kill' of the Christian ethical code, stands when correctly interpreted for the ideal of discipline of feelings, the control of speech, the cultivation of good will to all, the ideal of being the most helpful and least harmful. It is a parallel to the Positivist's motto "Act from affection" or their taking "Love as principle." Now love breaks forth into language. Love is cultivated through communication. The Ahimsa ideal in education, then stands in psychological terms for discipline of feelings, the foundation of all sound education. Corresponding to the school curricula it stands for discipline of the communicative instincts, the social instinct, language teaching and literary ideal of education, since language is the means of communication. Our Indian education of the present day, im-

parted in the Universities of the talking tongue and the listening ear, is mainly literary; but unfortunately forgetful of its foundations in discipline and refinement of feelings, which alone will bring it up to the Ahimsa ideal in education. Then shall hard words disappear, and no one call his brother Raca or fool, and none indulge in abuse or similar misuse of language.

The second Yama is Satya. As the Ahimsa ideal in education stands for discipline of feelings, helpful human converse, so the Satya ideal corresponding to "Thou shalt not bear false testimony," stands for accuracy of observation, accuracy of interpretation and statement, in short for the discipline of intellect. To be able to see things as they are, to be able to state and describe them as we see them, to be able to do as we say *i.e.*, to perform what we promise, that is the Satya or Truth ideal in education. All 'scopies and metries' are included in this ideal, the seeing and measurement of earth, geoscopy, and geometry, bioscopy and biometry, the seeing and measurement of

the domain of the living, or the seeing and the measurement of man, anthroposcopy and anthropometry. It includes all our 'graphics and logics' as well, Geography and geology, biography and biology, anthropography and anthropology, sociology and sociology. The Satya ideal in education then stands for the sciences, the observational and scientific note in the educational ideal. It has created in the west and will in due time create here the university of the seeing eye, in supercession of the universities of the merely talking tongue type.

The third Yama is Asteya, corresponding to 'Thou shalt not steal.' How is that represented in the modern universal church (?) the university in the French sense, including all schools from Kindergarten to the highest colleges. Psychologically this ideal stands for discipline of motor activities. It is the discipline of doing or the discipline of the instinct of workmanship, the constructive capacity in man. It stands for the law of labour, instead of the leisure class ideal of living upon the labour of others. It says 'labour and pay the

rent of life,' instead of idling on inherited or unearned income, stolen out of the contributions of past or present generation. In the educational ideal this will make for manual training, for technical education, for vocational training, for acquisition of skill in tool using. This will develop the differentia of man as a tool using animal, as Satya develops man as a thinking animal, and Ahimsa, man as a speaking and social being. The Asteya ideal in education will create the University of the helping hand, to complement the scientific universities of the seeing eye, and the Ahimsa type of talking tongue and loving converse.

The fourth Yama is Brahmacharya, corresponding to the commandment 'thou shalt not commit adultery.' It stands for the ideal of control of the procreative instinct. It stands for the ideal of conserved man-hood, for has not the poet said,

'Conserved man conquers every goal,
Wasted his days are hell.'

The corresponding ideal in the Greek Education was training in temperance. It is the

ideal of sovereign self control in every thing the self control that is wisdom's root. This educational ideal has been unfortunately lost sight of. Did not Ruskin complain 'what is the use of teaching reckoning if it is to be turned into roguery, of teaching literature if it is to be turned into lust?' Every sound ideal of education includes this training of the sex impulse, in all its ramifications of pursuit of pleasure for the sake of pleasure instead of for the sake of life. This part of our education should make the student proof against the seductions of pleasure. Self indulgence in every shape, the lust of the palate, the lust of the eye, lustful imaginings have to be brought under control. Psychologically this is the discipline of will, the manly self guidance in the service of the ideal. Our idea of the best system of education cannot afford to overlook this feature.

The fifth Yama is Aparigrah, corresponding to the Christian commandment of 'Thou shall not covet,' Christ brought this out beautifully in his instruction to his disciples. Take

no thought of tomorrow. Consider the lilies of the field etc. Psychologically this stands for the discipline of the acquisitive instinct, the thirst for possessions that possesses the hearts of many. Gambling whether on the race course, or in the stock exchange, speculation in land and London degrees, are so many symptoms of the sickness of our present "acquisitive society". Discipline of possessive instinct is therefore, a much needed ideal of education worth emphasising in the modern world.

Corresponding to the five Yamas, *i.e.*, Ahimsa, the discipline of feelings, Satya, the discipline of intellect, Asteya, the discipline of motor activity, Brahmacharya, the discipline of the sexual instinct, Aparigraha, the discipline of the acquisitive instinct, we have the five Niyams or positive virtues to be cultivated as ideals of education. Corresponding to Ahimsa is the positive injunction of 'Shoucha,' the cultivation of cleanliness. This stands for the hygienic ideal of education. Cleanliness within and without, cleanliness of body and mind, is what is required to be cultivated.

Next to Godliness is cleanliness. The one is a social ideal while this is a personal ideal. Thus corresponding to Ahimsa, godliness the social ideal, is this, it correlates the personal ideal of cleanliness. One must take care of personal hygiene else will he pollute the surroundings, and by contagion and infection spread disease and death, thus committing Himsa.

Corresponding to Satya, or truth ideal-the ideal of accuracy of observation and statement, and harmony between promise and performance, is the Niyama of Santosh, or the cultivation of patience. Truth requires patient investigation and hence the cultivation of this virtue is necessary for the pursuit of truth. The best ideal of education must include this training in patience and persistence in investigation.

Corresponding to the third Yama, Asteya, the abstention from the theiving of other's toil, the development of technical and constructive ability, is this its personal correlate, the third Niyam, Tapa, what Locke would call the 'hardening process in education.' The corres-

ponding Greek idea is the cultivation of courage, the conquest of pain, the ability to endure hardships. To earn ones bread honestly by the sweat of ones brow, instead of by sweating others, requires the cultivation of Tapa, hardening through grappling with the resistant material environment. An education that lacks this element of cultivation of courage, the ability to put up with pains and privations, the virtue of not being daunted by difficulties, is not an education that is sound.

Corresponding to the fourth Yama, Brahmacharya or control of the sex impulse, is the Niyama of sublimating sex-power into mental power through self study, the Niyama of Swadhyaya. The education that does not create the habit of studiousness, of constant intellectual effort at self education, will not be able to convert sex power into soul power. The education that does not result in the habit of self-education is not a complete ideal.

And what is the fifth Niyama, the personal correlate of Aparigraha, 'thou shalt not covet,

nor collect and hoard unduly.' If the educated man is not to hanker after possessions and bank balances, what must he cultivate instead? 'Ishwara prañidhan' the dependence on the Divine. If he is not to depend on Manimon, he must have dependence on the Divine order. If the Divine for him is Nature, he must cultivate dependence on the beneficence of Nature. If according to Comte the Divine for him be Humanity he must cultivate dependence on Humanity to take care of him, so long as he serves it. Dependence on the Ideal, the All thing, the Great outside, dependence on the comprehensive reality howsoever conceived, is the mark of an ideal system of education.

Thus Patanjali suggests to me, a comprehensive ideal of education. His Yama and Niyam, suggest the ethical note in education, Pranayam and Asan, the physical culture note, and cultivation of concentration the keynote to mental culture. Again the decalogue embodied in the Yamas and Niyamas suggest the most important factors in the

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best ideal of education. Thus ethically the yamas suggest that education should be life promoting not life destroying, should help not harm the life around, should respect accuracy of observation, and statement, cultivate truth and honesty, should promote living on ones own labour and not the labour of others, should teach sexual control, and curb covetousness. Psychologically the Yamas suggest, that education, should discipline the feelings, discipline the intellect, discipline our motor ability, or develop constructive ability, discipline the sex instinct, discipline acquisitiveness. In terms of school subjects, the Yamas suggest, that the best education should be not only literary, enabling us to communicate lovingly, but also scientific, enabling us to see truly, and technical, enabling us to make things instead of taking things, sex enlightened and self controlled, and train for co-operative instead of capitalistic ideals. The Niyamas likewise suggest the hygienic note in education, cultivation of patient research, courageous facing of difficulties, self education and stud-

OWNERS and finally a faith in the all embracing power, a dependence of the Divine.

My observation, reading and reflection, have led me to conceive and define the best ideal of education as above. The second part of the quest is how is this best education to be given in the shortest of time ?

I have partly answered this in the first statement of ideals, namely that education should be psychological in its methods. It should follow the normal course of development of the human mind, and proceed from observation to naming, thence to generalisation and finally to application. I have already developed this phase of the subject, recommending the culture period method of Hall, and the formal steps of instruction of Herbart, the kindergarten methods of Froebel, and Montessori, the manual training methods of Sloyd, the approach of all real learning to life as emphasised by Booker. T. Washington the great Negroe educator, and emphasised by Dewey in his " Schools of To-morrow."

I might close this by setting down the summary of the educational creed of Pestalozzi, the Philanthropic reformer who inspired both Froebel and Herbart.

1. Observation (and intuition as he puts it) is the foundation of instruction.

2. Language must be connected with observation.

3. Time for learning is not the time for judgment and criticism.

4. In each branch instruction must begin with the simplest elements, and proceed gradually by following the child's development, that is by a series of steps that are psychologically connected.

5. A pause must be made at each stage of the instruction sufficiently long for the child to get the new matter thoroughly under his grasp and under his control.

6. Teaching must follow the path of development, and not that of dogmatic exposition.

7. The individuality of the pupil must be sacred for the teacher.

8. The chief aim of elementary education is not to furnish the child with knowledge and talents, but to develop and increase the powers of his mind.

9. To knowledge must be enjoined power, to what is known the ability to turn it into account.

10. The relation between master and pupil especially so far as discipline is concerned, must be established and regulated by love.

11. Instruction must be subordinated to the higher end of education.

It is wonderful how this great philanthropist has laid great stress on what the founder of the scientific management termed the building up the science of every subject. Having settled on what is best worth imparting, the best, easiest and the quickest way to impart it is, by the teacher, analysing each subject into elements 2. by developing those elements into graded exercises, 3. basing the instruction on objects and actions, parts and processes rather than mere words, and 4. finally helping the child to ex-

press the experience impressed. In Efficiency such Elementary, Time, Motion and Motive, studies are always insisted on, for building up the science of a thing. Here is Pestalozzi employing this principle to teaching of language, oral and written, and arithmetic. Thus he analysed everything into its simplest elements of number, shape and naming, and led up from such elementary studies. His syllaberies for teaching spelling, ab, eb, ib, ob, ub, etc. show this point. He taught drawing before teaching writing. The elements of form were grasped, before application as signs in writing. He applied this most fruitful principle of analysing into elements and seriating. It will be noted that the principle of culture periods is nothing but that of correct sequence or seriation of order of disciplines and methods. Similarly Herbart's formal steps are simply seriation of sensation, cerebration, impulsion and action sequence. The best, quickest and easiest method, or the method of teaching in the shortest time is nothing but carrying this principle of analysis into ele-

ments, and seriation into natural sequence in all instruction, whether, ethical, scientific, practical or esthetic. Only in the Ethical and Aesthetic the order is to be from synthetic to analytic, and in the scientific and practical from analytic to synthetic.

Beyond these above suggestions, as to the method by which to impart the best education in the shortest time by a people seriously bent on socialising education, I might recall, that the best education relative to the individual can be imparted in the shortest time by simplifying and standardising elementary education as above and training mothers for their work of elementary education, and adopting the suggestion of affiliating individuals as well as institutions in this great work. It is only by utilising at their best all agencies of education the family, the school, the experienced individual, and correct use of sacramental principle and ceremonial occasions that the best education can be imparted in the shortest time. The sacraments, ceremonies, and fairs and festivals as agencies of education are merely mentioned as examples of what may be done.

CHAPTER XV.

EDUCATIONAL EFFICIENCY— PRIMARY EDUCATION.

To universalize the best known is the method of efficiency. Standardise your improvements and improve your standards is its motto. To make a community or society educationally efficient we must start with taking care of its children and providing them with the best education we know, in the best manner known to us. Thus if it be found, that Madam Montessori has found the best, easiest and quickest way of developing child mentality, her method should be universalized. For popularising her methods, we should recruit a sufficient teaching staff of mothers, have a children's house in every street, and provide such children's parlours with the necessary Montessori apparatus, to train the senses and active capacities of children. Thus in the housing of the poor planned by Talamo in Italy, in each group of blocks a central room

is reserved for the purposes of educating children along the most approved lines. In the children's parlour the apparatus is such that the children can handle, the chairs are suited to their height, the tables of appropriate diminutive dimensions are provided, in fact an environment appropriate to the child stage is provided and the child set free to live and grow and attempt activities within his capacities. His rights are thus respected and he is not forced into a man's mould before he is ripe for it. It is only by discovering and diffusing the best methods, whether those of Montessori, Froebel or Herbart that education can be made more efficient.

So for a community interested in educational efficiency, a survey of its children, and provision and training of a sufficient number of mother teachers becomes the first line of approach. To find out how many children are being educated along the most approved methods known to the community, and to mobilise mother power and community resources for bringing those approved methods

within the reach of all children is to start right with the foundations of all social improvement.

As the teaching staff is to be recruited from the mothers and widows, or men and women available in the community, so also the teaching apparatus is preferably to be manufactured by all interested in child welfare, and child education and able to manufacture, suggest or provide the necessary apparatus suited to the child and its immediate environment. Here again we have to survey and use the community resources to the utmost.

Beyond the infant and kindergarten classes, the primary education is also to be carried on mostly by the mothers. The motherhood of the community is to be trained for this noble mission, and thus education put within the reach of all. So far as primary education is concerned, the following suggestions made by the writer after inspection of several night schools will be found useful towards efficiency.

Re: Communicative instincts. (speech, gesture, ear and eye)

1. *Let the thing and the word go together.*—Similarity of sense impression is the scientific bond of human unity. A common conventional label for a certain set of impressions is the social bond. The thing is the basis of experience, the basis of thought, the word is the means of recording and exchanging experience. So offer as many concrete objects as you can, let the pupils see and handle them and sense them in a variety of ways and then if possible let them attempt to draw those in the universal language of lines and write below the conventional label which varies from province to the province.

2. Similarly let the action and experience and word go together, suit the action to the word, create the feeling, the word represents. Dramatization is a great help. Let story, song and drama make the language lesson alive.

Thus only can we combine literacy with education and link the means (words spoken, or written) to the end *i. e.* truthful communication of experience.

The child wants to tell, the child wants to act and imitate : give him the scope for these.

Since the pupils may be drawn from different occupations, let them bring the things they handle and the means of measuring they employ and instruct others in the knowledge and the use of that familiar material. Science and language have both grown out of our needs and occupations and they can be re-created from that seed bed. Base the language lessons on their daily experience.

Love broke forth into language. Needs evolved the deeds, the occupations which flowered into science and aided the useful arts. The thirst for beauty has created all our fine arts. And these are the permanent sources of languages, science and fine arts. So naming of things, doing of deeds that satisfy our needs, the uttering of simple words of pure affection, these are the bedrock, the solid foundation of all education.

Scientific and constructive instincts. (eye & hand training).

These are generally starved. Arithmetic is taught as an abstraction instead of being related to concrete realities and experience. Train the students to touch, see, weigh, measure, and encourage them to learn by doing. Provide all with footrules, scales and weights, tools, first for plastic and then for rigid arts for clay modelling, paper folding, card board cutting, geometric patterns and designs. Dramatize occupations, *e.g.* that of the grocer, the cloth seller, the blacksmith and let the students act by turns. Let them count, weigh and measure the actual objects around them. Encourage them to construct their multiplication table by actually counting out and filling squares on squared paper. See what the school can do to help the students in his parental occupation and make him realize and take advantage of the educational possibilities of that occupation. Advanced Montessori apparatus, specially geometric insets will be found useful. Basket work, lan-weaving, cane work and best of all hand spinning may be usefully introduced.

Elementary geometry, plans, elevations, sections and perspective drawing, estimating etc. would be helpful extension, work for masons etc. Let the language lessons of these be based on their actual work.

Artistic Instincts. (Music & Painting).
Refinement of voice ears, eye etc.

Provide musical instruments, Introduce musical drill.

Rhythmic exercises : Encourage use of simple musical instruments such as the reed pipes, the Yaktara, the Country Harp. Give children an idea of wind, stringed, tongue and membran, instruments. Encourage toy painting, paper decoration, and coloured paper designs, cheaper water colour drawings. Our students are generally deficient in geographical sense. To revive that the students should be familiarized with the map of the school building, neighbourhood, the neighbourhood, their village or town.

The school is the best psychological laboratory and some of the graduates might begin here the study of man and his mind by

keeping physiological and psychological diaries of pupils as suggested by Dr. Montessori.

So far as regards the methods used in Primary Education and the improvement of results through improvement of method. One of the methods of getting better results with less effort is the comparison of efforts and results under different systems of Primary Education. Thus for instance in the commercial town of Shikarpur we have the indigenous primary schools existing side by side with the Education department primary schools. The indigenous primary schools are almost self supporting, take care of about 50% of actual school goers and produce self supporting and useful results for the Mercantile Community. These indigenous schools teach, reading, writing, arithmetic, book-keeping, commercial correspondence forms bills of exchange &c. The children leaving the school are taken as apprentices by shopkeepers and carry errands and collect bills. Gradually they develop into acute businessmen and can take care of themselves as brokers and shopkeepers in any part of India and even

outside. It is the most economical form of training for the particular purpose. For those who cannot afford higher education this primary education is useful, as it fits them for an immediate, definite career. Compared with this are the educational department primary schools which fit for nothing in particular, are out of touch with local needs and are of no use except to those who want to go in for English Education. Everywhere then different systems of primary, high school and collegiate education should be compared from the point of view of efforts, and resultants, costs and useful output, adaptability to local needs and capacity to prepare for self-supporting careers.

CHAPTER XVI
EDUCATIONAL EFFICIENCY
OR
CONQUEST OF IGNORANCE.

High School stage.

The interest in immediate things, the learning through seeing and doing and subordinate to them through saying or hearing, is carried on towards the choice of larger interests and working of individual ideals in the high school stage. Here too we have to begin with investigation before advocating anything. The social engineer has to ascertain the number of boys of High School age, roughly 10 % of the population, and find out the available educational resources of his city in Teachers, Text Books, Libraries, Laboratories, Museums, Workshops, the opportunities for thought and action. He has further to investigate how far they are utilized.

Being in the first stage controlled by custom, convention and traditional mode of

outlook he would merely make a school survey and leave out libraries, laboratories, museums, workshops and the leisured middle aged people who have passed through the earning stage, have discharged their domestic duties and may if they choose so and are attracted and appealed to, join the rank of transmitters of individual and social experience and modes of achievement. The survey must include the leisured and experienced, it must also include the teaching possibilities of those actively engaged in useful pursuits. The apprenticeship method is a right method of education and the builders, the farmers, the shepherds can all in their way be educators of the young, so our survey must include them all and our organization and our plans of voluntary co-operation must provide for utilizing all this teaching energy.

That education is something that can be or is carried on only in a class room is an idea that must be abandoned in the interest of social efficiency. The teaching resources of the community are vaster than the school room. In fact the whole city, thinking and

acting is a vast university, an instrument of education. Greater co-ordination and planning would reveal undreamt of resources.

The social engineer's task it will be, to link together the boys in the teachable stage to elders in the teaching stage or to surrounding libraries, laboratories, workshops and industries and shops where learning by living, learning by doing is going on. The educational association of the city will have its needs and resources charted and use the resources effectively to supply the needs. Such a comprehensive vision of utilizing each educational resource, method, material at its best and utmost has not yet been popularized and hence awaits adoption and fructification. We have school committees in our municipalities but their outlook is narrow and restricted and not comprehensive and co-ordinative.

For lack of co-ordination, such educational resources as the experimental farm, the public garden, the kind gardener, the manly mason, the blacksmith, the municipal workshop &c. are not utilized educationally, though it is

quite possible to utilize them. The educational outlook is narrow and so these resources lie unutilized or one tenth utilized. A better organisation would press into service and thus open out educational resources vast and varied to meet human needs giving all due recognition and support, complementing and supplementing, co-ordinating the available resources with a view to the good of the community to the fulfillment of its own needs and not the requirements of some protean absentee Educational Department out of touch with local needs and aspirations, with local environments and resources, material, dynamic and human.

The recognition of these vaster resources need not make us less careful of utilising to the utmost the as yet organized resources available in the shape of schools, libraries, laboratories, gardens, museums and workshops. That school buildings are not put to more than 40 % of their use *i.e.* out of a possible use of 12 hours and more they are hardly used for five hours, that libraries are not utilized to the utmost, the best books are not circulated as

much as they can be and that private book collections are not even listed and there exists no organization of utilizing the book resources of the community, that laboratories are allowed to lie idle and unused for more than 70% of the time, that during vacations no one uses them and that they are innumerable restrictions to their utmost use by the community, and that similarly gardens, museums and workshops are not yet put to the educational use they ought to be, will be facts patent to any one who cares to survey carefully the educational situation as it is. The conscience of the community has to be quickened by popularizing literature, like that dealing with Gary system of schools, with Cleveland Educational survey, with Springfield Educational survey etc., by graphic presentment of wastes of educational resources going on in the community.

The problem is to educate every one to his or her best and utmost. The solution lies through full use of educational resources, conceived not in a conventional manner but

in a boldly comprehensive manner, including full use of feasts and fasts, holy days and holidays, nature contacts and culture contacts, self activity and social activity, all ways and means exhaustively catalogued, classified and co-ordinated.

CHAPTER XVII EDUCATIONAL EFFICIENCY.

SCIENTIFIC AND TECHNICAL EDUCATION.

Ruskin the great moral economist, rightly points out that 'all economy whether of states or individuals may be defined to be the art of managing labour. The world is so regulated by the laws of providence, that a man's labour well applied, is always amply sufficient to provide him during his life with all things needful to him, and not only with those, but with many pleasant objects of luxury; and yet farther, to procure him large intervals of healthful rest and serviceable leisure. And a nation's labour, well applied, is in like manner amply sufficient to provide its whole population with good food and comfortable habitation; and not with those only, but with good education besides, and objects of luxury, art, treasures, such as these you have around you now. But by those same laws of nature and Providence, if the labour of the nation or of

the individual be misapplied, and much more if it be insufficient, if the nation or man be indolent and unwise-suffering and want result, exactly in proportion to the indolence and improvidence-to the refusal of labour, or to the misapplication of it. Wherever you see want, or misery or degradation, in this world about you, there, be sure, either industry has been wanting, or industry has been in error. It is not accident, it is not Heaven-commanded calamity, it is not the original and inevitable evil of man's nature, which fill your streets with lamentation, and your graves with prey. It is only that, when there should have been providence, there has been waste; when there should have been labour, there has been lasciviousness; and wilfulness, when there should have been subordination.

Human needs have to be supplied by human efforts trained, disciplined or directed, wisely and efficiently applied. Through Technical Education the community trains its active labour power, disciplines its efforts to achieve better, quicker and easier results.

Education in our country has been quite one sided. We have very little education and what we have is mostly linguistic and literary and has not yet reached the other necessary qualifications of being scientific and technical as to make the best and utmost use of immediate environment.

The Technical and scientific capacity of the community thus goes on gradually decaying and dying through want of conscious conservation, discipline and development. How then consciously to cultivate the scientific and technical capacity of the community is the problem to which every efficient community must address itself.

The first step here as elsewhere is investigation, a survey of the situation. What progress has the community made in the discovery and application of inorganic, organic, psychological and social sciences and technology? How far are the chemical, mechanical, agricultural, educational economic and governmental and political sciences and arts developed? What are the arts

actually carried on in the community? How far are their scientific and technical foundations being improved? Such are some of the necessary questions to be answered by a preliminary survey?

But a survey presupposes an organisation. Has the community an organisation, an association for the conscious promotion of scientific and technical education? That is perhaps the first step. Otherwise a community action, a co-operative push is not possible.

The association of units who feel such communal need will begin with a scientific and industrial survey of the community, will catalogue the sciences known or cultivated, and the arts actually prevalent or practised in the community. Its next endeavour would be to improve promote and perpetuate the scientific and technical heritage of the community.

The West has advanced very much in this respect and perhaps quite a good beginning would be for the community to have a scientific and technical library bearing on the sciences and arts prevalent and possible. Correspondence

courses on civil, mechanical, electrical and chemical engineering, on agricultural, building and weaving would be helpful to the community provided the groups of workers in the different arts are helped with the information in these books. The association will therefore have to organise not only a library of such books but a body of men that may help the circulation of the knowledge contained therein.

When the community has thus helped the actual industries with an industrial library it may further enlist the co-operation of the workers in the industries to make the full use of the educational possibilities of their work and activity. Every mason, carpenter, workman, bookmaker has first to be helped with better ways of doing his work and next to be called upon to help, training and creating as many carpenters, masons, workmen as are needed by the community. If the activities of the worker are supplemented by the necessary sciences relating to his work he can be made into a better worker. The best of such workers may then be called upon by the

community to train future efficient workers in that line. The educational process is a universal process and all occupations have educational possibilities, in fact technical instructions is meaningless till applied and these opportunities for application are present in the vast workshop of the city.

The technical education of the community might start with a library of correspondence courses on different prevalent and possible arts, the knowledge might be rendered sympathetically available to groups of workers, young men might be trained in the library and then placed to work practically under guidance of the expert workers and thus a system of diffusion of scientific and technical knowledge might be carried on.

Along with a scientific and technical library the community may also provide a scientific and technical laboratory for the use of its members. With this will begin the discovery of new knowledge. In all this we have to begin first with the nearer in preference to the more remote. The starting point is to be

the actually present and prevalent industries. The goal is to be the improvement of these processes within the reach of the community through better knowledge and better tools conveniently procureable. The diffusion and advancement is to be gradual and in each case with actual reference to the needs and conditions of the community.

For each province or the whole of India there may be a central examining body like the City and Guilds' Institution which may set examination papers in different Technological subjects and grant certificates. Such a central Institution may also set syllabuses and create suitable correspondence courses in different Technical subjects in keeping with the needs and condition in India. It will be profitable to consult the formidable list of subjects on which examinations are held by the City and Guild Institution as well as the many subjects for which correspondence courses are issued by the Industrial Correspondence School of Scranton, Pennsylvania or the American School of Correspondence of Chicago.

To summarise we find science or technology neglected, we find no regular schools for the purpose even in the cities of over 20,000 population. Every town of a population of 5,000 or over should have a scientific and industrial survey, a scientific and industrial library, an organisation for promotion of scientific and technical knowledge, a body of workers willing and able to guide the younger generation in mastering the scientific and technical heritage of the community and further a body of research workers to find out the best, easiest and quickest processes and tools for activities actually carried on.

Social efficiency rests on educational efficiency, on scientific and technical efficiency in organizing the scattered possibilities and actualities into a corporate collection of conscious forces working for the good of the community. Here is field for workers. Here is a rich opportunity for the great number of candidates for municipal membership. Here is a voluntary membership, resting on

willingness to serve the community to work for it.

A survey of the actually prevalent sciences and industries, a survey of its resources in recorded knowledge, private technical books held by different members, a survey of the bigger industrial establishments and the opportunities they provide for training of future workers, would reveal possibilities of co-ordination and development which would benefit the community very much. A survey of the idle, the un-employed, the untrained, the unskilled would show the human capital of the community going to waste. A fitting occupation corresponding to the needs of the community has to be suggested to these. May not communities thus consciously work for their own welfare, for their own development. There is so much want, misery and degradation about and around us. Its removal is in our hands if we set our wills to earnestly work in this direction; for Ruskin's words are everlastingly true 'wherever you see want or misery or degradation in this world about you, there, be

sure, either industry has been wanting or industry has been in error. There is waste, idleness and wilfulness. The remedy against waste is greater knowledge, that against idleness is more work and that against wilfulness is wiser co-ordination and control.

Parasitism holds sway instead of service, and this parasitism is to be abolished. That society alone is efficient that is least parasitical, predatory, destructive and wasteful and most helpful, serviceable, peaceful, constructive and provident. Social efficiency thus rests on scientific and technical efficiency. India needs great activity in this direction.

CHAPTER XVIII

EVERY CITY A UNIVERSITY.

A University is a city or province thinking. The needs of every city, district or province are different in some respects from those of every other city, district or province. A University represents the conscious brain centre of a community for conservation, development and diffusion of its culture heritage in the best, easiest and quickest way, according to its peculiar needs and circumstances.

To have only 7 universities controlling 187 colleges in a vast continent like India is to have a ridiculously low number. In the United States of America with its less than 1/3rd the population we have 350 organized universities, each with several departments which would count as separate colleges here. The expenditure per capita on higher education in Great Britain, United States and Switzerland is 44 times as much as it is in India.

It will be noticed that we need a great many more and better universities and colleges if we are to be educationally as efficient as other people are. What has been actually achieved in Germany and America is a reasonably attainable goal for India as well.

Not only are we backward in the number of universities but we are far behind the advanced people of the United States in the variety of courses offered, in the methods adopted by the universities there.

A university is to be a seat of learning. It has to advance and diffuse knowledge, to assay and lend public recognition to those who come up to a certain standard of attainment in different branches of science and arts. Briefly, a university has to carry on research work and the work of higher teaching. It has to affiliate institutions that come up to its standards and to examine and grant degrees and diplomas to those who come up to its recognised level of learning in different branches and it has to do all this with reference to the needs and conditions of the community it

serve, keeping the greatest preservation and promotion of learning as its aim.

The universities in India have not gone very much beyond the stage of affiliating and examining universities and even in discharging these functions they are not doing the utmost that can be done. Their conditions of affiliation are so strict that the starting of several colleges must have been practically stifled it is not imposing structures that are necessary for higher education but educated men. Wherever ten or a dozen Professors could be got together for a guaranteed minimum of a few years we have conditions for affiliation. It matters not if the teaching is carried on in the open air, under the canopy of heaven or the shade of trees or simplest thatched huts. Teachers and text books are the only necessary requisites and a local library and laboratory which may be provided for by each city.

If education is not to be treated as a monopoly or a passport to an artificially privileged and paying position such restrictions on education as we have at present ought to

disappear. For social efficiency education even the highest is to be the equal birth right of all who have the requisite brain capacity. So aspiration and effort is to be recognised at all levels. Thus the qualification of having been in contact with a live or conventional profesariate has to be separated from the examination test which only bears witness to the capacity of the student to answer certain questions to the satisfaction of the examiners. Those who for one reason or another are not so favourably situated as to be able to come in contact with a group of professors may still be given the opportunity of getting their merit tested and recognised by the university. If the tests are as scientific as they ought to be they should simply register and recognize present capacity no matter how acquired. They should be no respectors of persons or privilege or the accidental opportunity of being within a college area and having enough time to spare for keeping terms.

Thus as far as affiliation is concerned India should provide a minimum of require-

ments *viz* a capable staff of Professors wherever they could be gathered together. The further restriction of a substantial building, of a variable library and laboratory may for the present be dispensed with. So far as examination is concerned courses may be prescribed on all sorts of subjects and examinations conducted impartially for all who want to submit to the test. Let the tests be more strict, but let not the test factor be mixed up with other factors, which are quite separable, and which by being lumped together, hinder so many from legitimate aspiration, effort and recognition.

This and other items of university reform have already been dealt with in chapter XIII, on Economics of Education and need not be repeated here. Suffice it to suggest that the wisest heads in every city, those eminent in different sciences and arts may be requested by the community to constitute themselves into faculties say of literature, science, technology, agriculture and medicine, law and politics. These faculties together may constitute

the University, prescribe courses of study, appoint examiners and study and plan for the development of higher learning in the community. Such a University will be able to take into account local peculiarities and local resources natural and human and adjust its efforts to the satisfaction of the actual-educational needs in community with reference to their environment. Such centres of thought in each city would keep the city educationally alive and conserve knowledge and practices actually present and prevalent. Thus suppose the doctors of a city constitute themselves or elect some from among themselves a faculty of medicine. The health and disease of a city may be the peculiar care. All tried remedies and modes of treatment would be conserved and improved by them. All local materia medica would be registered and popularised by them. They ought to start, and constitute a self-perpetuating and self-improving group. Those trained elsewhere but settling in the city would be welcomed and the best in the old systems may

be retained together with the best in the new. Those wishing to study medicine might be given lectures by different specialists opportunities for practice under different doctors who might be recompensed by the community in cash or respect for such services. Other faculties might work similarly. All conjointly might start a big public library and laboratory for reference and research.

Such a university may be in charge of the entire educational activity of the city. Every child entering any school, every teacher and helper would be a member of such city university. Such universities started in different cities, sending their representatives to a central National Council of Education would constitute a system of Free Federated Universities, independent enough to progress untrammelled, sensitive enough to adjust to local needs and comprehensive enough to co-operate with the larger central impulse initiated by national needs. From the variety of universities would spring by trial and error the best types suited to the genius of the whole nation.

CHAPTER XIX.
TEMPLES AND MOSQUES AND
HOW TO USE THEM.

A great educational asset lies locked up in our temples. They are the real indigenous seminaries. They are capable of a varied use. They can be developed as school rooms, court rooms and council halls of the community, in fact as great community centres and meeting places. There the children might be taught, there elders might meet and confer, decide inter-communal differences and disputes and there the young men may be enthused to take up lines of communal activity along with the daily work, there in short may the higher resources of the votaries be harnessed for greater human culture, human harmony, happiness and efficiency.

The older tradition has been displaced by the new and so the court room, the school room and council hall have taken the place of

the temple and the mosque. In many cases it has been an unwise desertion of an existing institution. In the revival of whatever was good in ancient methods and in the renewal of good uses to which it is possible to put the temple and mosque lies the secret of gradually bringing the spiritual power to its own birth-right of counsel and guidance. The spiritual power now divorced from its spiritual associations and foundations on the one side in our present schools and newspapers and platform, and on the other shorn of its active utility to the community on account of the temples no longer discharging the educational, inspirational and harmonizing functions as of old, has resulted in the weakening of its hold on the people. Linking the spiritual power to its legitimate temple location and its rightful regulation and inspirational and educational function would restore the unity of body, soul and action. Education, law and politics are all rooted in religion and thus temple and mosque are the meeting places for these three activities in the spiritual aspect.

For the Hindus, the use of Temples as schools and transformation of Sadhus into a teaching service would be a reclamation of wasted resources increasing the communal efficiency to an enormous extent. Efficiency requires that we should use what exists for its highest and noblest purpose. Thus it will conserve and utilize the old and bring out the best that can be brought out from existing institutions. Temples and Sadhus, mosques and Mullas await the transforming touch of a master spirit to be moulded nearer to the hearts desire in the service of the ideal. It is because these are discarded that we find our educational resources inadequate. Our want is linked to our waste of resources. These then are the resources which will be utilized by our people whenever they consciously work towards greater educational efficiency and thus greater social efficiency.

Human capital is the most valuable asset of a people. Good character is the enhancement of the quality value of the human capital. This culture of character, this train-

ing towards nobility, towards purity, and spiritual power, is the peculiar province of the temple and the mosque. To add ethical values to human life, to make men industrious, effective, true and trustworthy, dependable and devoted, self-controlled and self-sacrificing is the work to which the temples are to address themselves. This system of inner culture, this development of moral worth, of personal humanity has been more or less neglected and is being gradually introduced in the shape of moral instruction, scouting etc. The temples should be custodians of character culture. Thus would the moral health of the community be kept up. Most of litigation, destruction and discord would be prevented and smoother and economical ways would be improvised and used for bridging over differences and disputes. Human relations would be harmonized and happier homes, and happier cities would result. Every temple should have a collection of Religious and Ethical literature and should circulate the noblest tradition orally as well as by populari-

zing individual study of the best religious books. Habits and moral outlook of the people could and would be greatly improved if the temples and mosques are put to proper use.

CHAPTER XX.
SOCIAL ASSIMILATION AND
SOCIAL EFFICIENCY.

India has varied population elements. So long as the cohesion among these elements is low, and conscious co-operation is wanting, social efficiency is bound to be low. The process of assimilation must therefore be understood and accelerated to quicken and increase cohesion and conscious co-operation.

India is in the grip of caste. At a certain stage in social evolution, as a transition out of the tribal stage, caste was useful. It conserved knowledge and skill. But now it hinders the march towards territorial unity. "Hereditary division of labour" is no longer needed, when systematic school education has taken the place of training in the family. Inequalities of rights and privileges based on birth and unsupported by worth are out of date in an age when the money criterion has displaced both birth and worth. Restrictiou

of the marriage zone, restrictions on inter-dining, keep up reciprocal repulsion and thus militate against cohesion.

Caste now is an anachronism, so far as India is concerned. The thousands of castes among the Hindus, some of them persisting even among the Mahomedan and Christian converts, atomize, segment and fragment the forces of society. These must gradually melt away if India is to increase her social efficiency.

The most necessary step for social efficiency is the resorption of these thousands of closely inbreeding groups called castes, into the four broad varnas, or classes worth determined and not birth determined. The close inbreeding in many of the multiplying subdivisions, has led and will surely lead to degeneracy. The cleavage set up by this segmentation, has paralysed collective life. In its extreme form it has led to contempt for one fifth of our brethern. The removal of such opprobrious prejudices as distance pollution, and the assumption of human relationship with the six crores of untouchables, are

the tasks to which Indian society, specially Hindu society must address itself if it does not want to perish in utter helplessness. To be able to come to our own in the midst of highly organised groups, we must try to organise territorially, that is try to remove barriers to better cohesion, such as the caste barriers un-doubtedly are. We must try to remove the heart burnings that alienate the untouchable. In the words of Mahatma Gandhi, we must further try to bring about an all India, Hindu-Mahomedan-Christian-Parsee-Jew unity. Our efficiency as a group can only increase in that way. So long as the forces of our social system nullify and neutralise each other, by internal friction and tension they are not available for all India group struggle, or group improvement. The first step therefore to social efficiency is the removal of these internal frictions and tensions.

The new born spirit of Nationality must be strengthened to combat the fatal spirit of caste that rules our present social arrangements. That India has all the essentials

required for building up a national being cannot be questioned. In the words of Prof. MacIver, India has "the first foundation of nationality namely an environment within which people learn to know one another, and to recognise that they are subject to common influences and master of common opportunities, while around them are territories differently named, and not under a common government which partly prevents the free extension of that sympathetic knowledge and assimilating co-operation." India in short is a well defined territorial unit, under a common government, capable of and coming more and more to think itself as a unity and a community. The physical factor of definite demarcation is there.

What about the psychological factor of nationality, 'the will to be one'? Has India shown an absence of the will to be one? Is not the will to be one, the will to claim self government present throughout the cities of India, and slowly permeating the villages too? Let Prof. MacIver be consulted. What does

he say? "What then is the criterion of nationhood? It is the desire for self-government surging out of the sense of likeness and difference. Every nation tries to be united in one state. Historically the rise of nations has centered round the claim of self government. "Here is the true place, and service of the nation, to conserve a sense of community, which might otherwise be lost in smaller conflicting devotions or else in the shallow and unabiding loyalty of empire or more cosmopolitan enlightenment, and to give free play to that sense through the co-operative activity of its proper organ, the state."

"For it is only in so far as men feel their community that they can whole heartedly join in the pursuit of their common interest. Just here to the danger lies. Men no sooner achieve a range of community than they seek to make it absolute. Nationality should be regarded as the inspiration and the ground of interests and activities that are not nationalistic. Nationality is a way of being human. If we seek to limit the interests which a nation

pursues so that beyond its frontiers they cease, we mutilate those interests and destroy the very service of nationality. It is not by thinking of the exclusive interests of the nation that advance is made, except in the single case of the attainment of self government as a basis for the free pursuit of all interests."

"Nation is often confused with race and we ought to understand quite clearly that race and nationality are entirely distinct. There are no pure races in the world. When we realise that nations are not racially distinct entities, it becomes apparent that there remains no single outward criterion of any kind to mark off nation from nation. Take language. A nation may be one though its members like the Swiss, speak several languages, and a single language, like English or Spanish may, may be common to diverse nations. Take religion. The day of the national God is past, and the God of a denationalised race holds the at least nominal allegiance of the divided nations of the Western world. Take culture. That pervasive spirit seeks to unite many nations, and it is

any how, the growing legacy of a past world to the new nations of the present, so that those who would draw round it the frontiers of nationality err no less egregiously than the prophets of race take physical form. Whatever index we adopt, whether the length and breadth of the skull or the slant of the jaw, or the orbit of the eye cavity, or the shape of the nose, each gives a different classification and none is the clear identification mark of the members of any nation. Nationality must therefore be a subtler thing, without external signs. Yet long tradition, and common customs inherited from a common past seem scarcely necessary, for the Americans, fused out of the detached fragments of many full grown nations, surely possess a nationality and the Canadians, Australians, and other offshoots of the English stock feel themselves to be distinct nations."

"The use of nationalism is to transcend the locality and the region and to break down the mental isolation of smaller groups, their sense of alienation from one another, their

feuds and prejudices, and their fierce spiritual pride, in such a way that they attach themselves to one another in a larger unity the nation." It is this spirit that we are to invoke to break through the narrowing notions of the caste, to achieve a greater social efficiency. [MacIver Elements of social science, p. 103;]

Let us try to understand a little more clearly this social process of assimilation, and the steps leading thereto. Prof Giddings in his "Studies in the theory of human society" (p. 139) thus describes the process. "Just as units differently reacting to incidental energies become increasingly different, so do units similarly reacting; become increasingly alike—they are assimilated.—and this phase of the evolutionary process is important in the phenomenon of life and behaviour. It is specially significant for the student of social theory."

There is a preliminary and unconscious process of assimilation going on in society, which is supplemented by or often develops into a conscious process, or conscious effort

on the part of society to promote likemindedness for bringing about a better cohesion and co-operation. Thus as instances of preliminary assimilation Prof. Ross in his "Principles of Sociology" (p. 80) mentions (a) Assimilation by the physical environment, as exemplified in Arabia being the area of uniform characterisation, and the desert being probably the common ancestor of the twelve tribes of Israel (b) assimilation by occupation and mode of life (c) assimilation by common elements of culture (d) assimilation by forced or political association making a way for free association.

As Ross points out (p. 224) "Heterogeneity limits co-operation. Now when the elements with clashing traditions respecting diet, dress, manners and social customs are intermingled, their mutual aversion and contempt not only limits gravely their co-operation but may even cause friction and violent conflict. The persistence within society of elements with quite incompatible standards is therefore recognised as a weakness and a danger; so that thoughtful persons and others in their thoughtful

moments endeavour to find among the heterogeneous a basis for mutual respect and cooperation. Hence partly spontaneously and partly as the result of intelligent effort, diverse ethnic elements gradually adapt themselves to one another. The chief steps in the process are Toleration, Compromise, Accomodation and Amalgamation."

"Nearly all founders and teachers of religion have seized upon the antipathies arising out of irrelevant differences as the very first of the evils to be cleared away in order to make room for the higher life of man. And always the ancient spirit of the tribe has fought against these teachings, neglecting or distorting them. The promulgators of universal religions stand for toleration of the stranger. They stand for brotherhood. Naturemen are generally more tolerant than culturemen. But tolerance can be fostered by the idea that peculiar manners and customs are, after all, externals; and that it is the inner qualities that count; that the outwardly unlike may be brothers in soul. Furthermore

toleration is furthered by regulated avoidance. Finally toleration of nonessential differences is promoted by mutually advantageous contacts and relations. We are tolerant of differences in fellows and team mates."

"Pressure produces willingness to compromise. The necessity for co-operating prompts the unlike to compromise their differences, and abide together rather than go asunder or fight each other. As the pressure grows they consent to more compromises, as the pressure lightens they refuse to compromise longer.

"There are various factors which promote the process of accommodation. Intermingling or stirring the different elements of population through one another does it. Intermingling is greatly favoured by good highways, by improvements in the means of communication. Contact contemporises groups in different points in the same lines of development. Common religion, common law, common language, the public school, the common newspaper, are all helpful towards reciprocal accommodation. Voluntary associations crossing

ethnic lines, struggling together and gaining victory together hold the different elements of the population."

"After the major differences in speech, religion, and customs between intermixed population elements have been planed away, intermarriage takes place freely and the original diversity disappears. The offspring of these mixed unions, reconcile in their persons the opposed tendencies. This is the process of amalgamation. "This leads to assimilation of the different elements.

Another great agency of assimilation among subjugated people is the new force of nationalism. "The greatest strength of this force has been shown in resistance rather than expansion. It has inspired supreme sacrifices when the historic character of a subject people as embodied in its language and literature, its customs institutions and religion, appeared to be threatened with extinction, by the aggressive policy of a dominant people. The motives which have prompted the efforts to undermine and efface the national

culture of the subject people have been obvious. Generally assimilation is pushed by government and small groups among the dominant people. They wish to Russify, or Prussify, Magyarize or Anglicize the subject people in order to lessen their resistance to alien domination, or to alien exploiting class, to pacify them and make them patriotic, to worken the industries and make them better consumers of the goods produced by the dominant people." Imperialism has posed to be disinterested but in fact there has been 'very little of the Missionary spirit in it.' " Thus writes Ross: " The driving forces behind the advancement of the empire have been the craving to seize rich natural resources, the eagerness for exclusive markets, the quest for opportunities for the profitable investment of superfluous capital, and the itch of dynasties and ruling classes for the exercise of dominion."

Hastening of assimilation in India should therefore proceed along the lines of increasing toleration, compromise, accommodation, amal-

gation, and inclusive spirit of nationalism. As specially helpful towards accommodation, would be the policy of starting regional and civic commonweal associations for the greater efficiency of each region and each city. A practical programme would therefore be that the 34 or at least 16 natural regions of India as given in the census of 1911, and the 72 cities should have religious associations, university associations, economic associations, social reform associations, health associations, art associations, political associations, as suggested in the last chapter of this book and that these should have a representative membership and work systematically for the study and improvement of the regional and civic conditions. This will help health and culture, cohesion and co-operation, federation and assimilation. Of course the local and regional associations will have to be coordinated and unified in each region and then a federation of such associations, constituting an all India organisation, may come to constitute the real national congress.

CHAPTER XXI.

HARMONISING HUMAN RELATIONSHIP.

CONQUEST OF DISCORD.

Police, Pleaders and Courts! What is the cost of these for our city, our province, our nation? What is the total trade? What is the total costs of disputes and differences? All this gross and glaring human friction added to the countless minor rubs and disagreements that fall short of leading us to Police, Pleaders and Law Courts make up the account of waste of human energy and thus take away from the total of social efficiency.

What is the best, easiest and quickest way of avoiding disputes or of deciding them when they arise? Arbitration or Law Courts as at present constituted—which of these gives speedier justice? Which more economically? What is the cost of decision by war between different social groups? All these and similar

questions have to be patiently investigated and decided upon in order to increase social efficiency. The strength and activity of Police, Law Courts and Pleaders is a good indication of social inefficiency. Comparative surveys here as elsewhere would be great eye openers and may put us in possession of facts which may reveal the laws of least human friction and least waste. In fact the tendency of human evolution seems to be to substitute litigation or legal settlement for war, arbitration for legal settlement and ethical conduct for arbitration.

What are the preventive methods? Thou shalt not steal, Thou shalt not kill, Thou shalt not bear false witness, Thou shalt not commit adultery, Thou shalt earn thy bread in the sweat of thy brow—these are the corrective ideals that master minds of humanity have preached by example and precept to increase social efficiency. Idleness in one form or another and the consequent habit of predation instead of production, of making money instead of making goods that we consume and

need, is at the bottom of much of class competition. Discord results when people instead of making goods adopt the seemingly easier method of taking goods by devices of monopoly, bargaining, unequal contract and enforcement of unfair agreements. It is idleness and ignorance that dictates overt and covert force and fraud instead of industry and economy for getting the things and services we need. Dishonesty, want of confidence and vice all lead to discord and social inefficiency.

Whoever opens a school closes a prison but the school must be the right sort of school not one directed to training to people for privileged positions but for self support from natural resources, one habituating all to the necessity of bread, clothing, and shelter labour. Such training for practical honesty would result in disappearance of theft and robbery and the negative work of watch and ward for which societies and nations pay so much.

Policing, litigation and war are all alike wasteful. The armies of pleaders, military generals and soldiers that have to be maintained

take away so much from constructive effort. Could war be done away with it would to quote Professor Carver 'release for other work much splendid talent which now goes into the military profession. The same may be said regarding litigation. No one not even the lawyers, believes that litigation or legal disputes are desirable. Every one will agree that it would be better if we could, and most of us hope that we may, greatly reduce the amount of work for lawyers to do. Among other advantages this would release for the necessary work such as scientific agriculture, engineering and business, much of the splendid talent which now goes into the legal profession.'

So also unless the priestly class remove discord by training the character of their followers, unless they like the teaching and labouring monks of old, create new values in their congregation, help true education and reclaim waste lands and help the harvest of golden grain by which men live, and build gardens that sustain and gladden, they would represent social waste, reclaimable, avoidable, preventable.

Hence the social surveyor would find out facts about Police, Law Courts, Lawyers and Priests and see how far by cutting short human discord and increasing industry and honesty and self control the energy of human beings employed in these departments may be released for constructive work.

CHAPTER XXII.

ART EFFICIENCY.

Man lives not by bread alone. He needs felicity as well as food, healthy happiness as well as hard labour, fragrant flowers as well as edible vegetables. Art being in Ruskin's words 'that particular branch of human labour which is concerned, not with procuring of food but the expression of emotion, obeys the laws of labour *viz.*, that we should employ it rationally and produce most precious and lasting things and 2ndly préserve its produce carefully and distribute its produce seasonably. It obeys the laws of good, instant and constant application yielding the richest result. Art poverty of a people argues that 'there has been waste when there should have been providence, lasciviousness when there should have been labour and wilfulness when there should have been subordination! 'Art' in the words of Muller Lyer 'being the offspring of leisure and plenty, stands furthest from the purely utilitarian.

phenomena of life and is the highest summit of the superstructure of civilization, which has its foundation in material things. So art poverty argues absence of leisure and plenty which again argues, labour idling or misapplied, and its results wasted or misappropriated.

Ruskin in his *Political Economy of Art* deals with this department of Social Efficiency. He lays down that the question in this particular case becomes fourfold first, how to get your man of artistic genius; then, how to employ your man of genius; then, how to accumulate and preserve his work to the best national advantage.

For discovery of artistic genius, the 1st principle to be borne in mind is that artists are born not made; and they have like gold to be found, fostered and developed through due recognition, praise, employment and reward. 'Noble art is the expression of a great soul and great souls are not common things.' Ruskin recommends the establishment of trial schools under Master Artists who try candidates with different kinds of arts to find what each is fit

for. Appreciate artists, employ them and have informal art schools under existing artists and the art faculty present in the community will very likely to be discovered. Now through neglect 'the best artistic instinct is daily lost in other vocations.'

For the discovery of its artists society must thus provide 1st the searching or discovering school, then the calm easy and secure employment, then the justice of praise and one thing more preparing them for full service namely making in the noble sense of the word, gentleman of them; that is to say taking care that their minds receive such training that in all they do they shall see and feel and communicate and convey the noblest things.'

As regards application Ruskin recommends that the artists discovered be set to various work, to easy work, the easiest and quickest work which will answer the purpose, giving them suitable materials and method that will help not hinder their self-expression. Lastly the artists must be made to work not in perishable material but in doing

lasting work. The conditions of work lasting are twofold; it must not only be in materials that will last but it must be itself of a quality that will last: perfect work not hurried work. Artistic talent must further be applied, for social and public ends rather than for private and selfish ends.

So far as accumulation of art is concerned the Social economist "has a subtle balance to strike to accumulate so much art as to be able to give the whole nation a supply of it, according to its need, and yet to regulate its distribution so that there shall be no glut of it, nor contempt. Do not force the multiplication of art and you will not have it too cheap," Do not wantonly destroy it and you will not have it too dear. There has been great and wanton destruction of art through human rage and changing fashion. The artistic achievements of the past should be treasured and improved upon. Let rich men take pride in preserving great art instead of producing mean art; pride in the possession of precious and endur-

ing things a little way off, instead of slight and perishing things near at hand.

Be prepared to pay handsomely for best art, never grumble over or grudge the price, encourage originality and individuality and not copy and wherever you go and whatever you do, act more for preservation and less for production. Preserve the best that exists and then start producing more but not before you have preserved what is best. All these remarks adopted from Ruskin apply to all arts, though applied by him to painting only. Best books, best music, best architecture, best beauty spots have to be preserved for national uplift rather than new made or duplicated. Preserve the best, use that as a pillar and not a pinnacle and mount higher. This much for accumulation of artistic product.

What about distribution of art treasures? The most useful way that suggests itself is to collect them and preserve them in public galleries. But beware of the foolish curator and the danger of wholesale destruction that accompanies accumulation at one spot. If

you can get over these two dangers, preservation in public galleries is the best though private collection of the works of living masters ought also to be encouraged. For encouraging the latter limit steadily and rationally the price of pictures so that the painter may paint more and secondly pay and appreciate the artist when he is yet alive and not only after his death.

Ruskin further recommends the casting of toil into social and communicative systems, re-establishing yields of every vital trade in a vital condition for taking care of the unemployed and registration and popularising of all improvements in that trade. He recommends that guildhalls be painted and decorated with the best of art. 'Art may do noble work by recording in the hall of each trade, the services which the men belonging to that trade have done for their country, both preserving the portraits and recording the important incidents in the lives of those who have made great advances in commerce and civilization. Similarly almshouses, hospitals

works houses and of course schools and colleges should be nobly decorated. The noblest use of wealth is indeed not selfish but social and those who have should consider themselves stewards and use their powers as arbiters of the will and work of labourers for the permanent good of society and not perishable and whimsical selfish ends else are they untrue to their trust.'

The art efficiency of a people then depends on the combined efficiency of these four factors, thorough discovery, wise appreciation careful accumulation and preservation and lastly public and social distribution of its art products.

CHAPTER XXIII
RELIGIOUS EFFICIENCY
OR CREATION OF CHARACTER.

"Righteousness exalteth a people." Religious efficiency is measured by the correctness of the conception of righteousness, and the extent to which righteousness is rendered powerful and prevalent. It is the mission of religion to unite the people and not divide them, to destroy artificial barriers of class and caste and not strengthen them; and, wherever it does not perform the function of making every one love his neighbour as himself, we may be sure it has been perverted to selfish and priestly interests. The pioneers of religious systems laid great stress, on essential human equality and interdependence, on human helpfulness and on the practice of the golden rule of doing unto others what one would wish to be done unto oneself by them. Wherever this harmonising function of religion has disappeared, the religious ideal

has been debased, and religious efficiency is to that extent low.

'The religious sentiment' as Guyau puts it 'is primarily a feeling of dependence leading to a desire for deliverance.' For purposes of social efficiency the more a people realize their dependence on humanity, a deliverance from wasteful antagonism, the greater will be their efficiency. The more a people realize that the kingdom of heaven is within them, and is to be realized right here and now on earth, the greater will be their religious efficiency. When we spiritualize our daily activities and work in the truly brotherly spirit of equalizing economic, educational, political and social opportunities for all, we shall be making the best use of religion.

The various religious institutions are thus to be utilized for human betterment, for strengthening the sentiment of human brotherhood, for emphasising the essential oneness of the religious ideal for promoting religious tolerance, and federation of effort in achieving the common ethical factor underlying

them all. A survey of the various religious sects and systems within a community or a city has therefore to be made, and the common groundwork of ethical ideals for which they stand, is to be emphasised and a spirit of tolerance engendered for the differing metaphysical over-beliefs.

Religions have really a social purpose. They are all efforts to teach human beings to live and let live. Their ethical content e.g. the Mosaic Decalogue, the Sermon on the Mount, the Yama and Niyama-the decalogue of the Hindus, the noble eightfold path of the Buddhists, all indicate ideals, which if realized would save humanity from great wastes of effort and energy due to selfishness; and the friction is thereby reduced between man and man. All religious institutions should therefore try to ennoble the characters of those attached to them, and the more they do this the greater will be the religious efficiency of the city.

Where however the ethical content is neglected and difference in creed and ceremonial is emphasised, and dividing walls erected-

between followers of different systems, giving rise to constant brickerings and illwill, religious efficiency is low; and one may be sure that religious institutions have been prostituted to personal and priestly ends. Deeds should count more than creeds, in the valuation of human beings and people should not be judged by the religious label they bear, but by the love they express in their life. Such a broadening of toleration, such emphasis on objective tests of judging a man by his life, such strengthening of the bond between all men of good will, good thoughts and good deeds, would increase social efficiency.

For true religion in its essence is inclusive not exclusive. It offers salvation and deliverance to all, not to those who simply fulfill the letter but to those who 'do the will of God,' and are good in the highest human sense.

The lives of good men, of the eminently religious men, are thus to be surveyed and popularized; and the ideal of goodness, so far as it finds expression in their deeds is to be emphasized; far above and beyond their creeds

their deeds are alike in being within their group the least harmful and most helpful: and, if with their group, why not with the highest group, with the whole of humanity. To be least harmful and most helpful to human beings, to search for, think about and love the truth, to help the production of goods and services and not only to consume or steal them, to be self-controlled, to be cleanly, stoical and studious, to be patient and joyful, such are some of the ideals found in every religion. And the more such ideals are realized the better for humanity. What is wanted then is a purification and enlargement of the sphere of religion on broadest basis of good will to all, correct comprehension and control of self and surroundings.

For efficiency, Religions should at once individualize and socialize, should leave every one free to frame his attitude to the universe in his own way and yet should so integrate divergent attitudes as to secure the maximum of human helpfulness for the good of all. Minds will vary and so will their attitudes, but

our needs permanents and periodic persist, our common needs for good shelter and clothing, for conquest over disease, discord and ignorance, for conquest over vice and crime. These needs persist, and call for common effort; and religion should unite human beings in satisfaction and conquest of these needs and shortcomings. In the measure that it does so it is efficient.

CHAPTER XXIV EFFICIENCIES.

Produce the most you can of the highest and best and most needed commodities and services, and consume the least of commodities and services, spare and share;-that is the philosophy of efficiency. We shall in this chapter discuss the different forms of efficiency which can be analysed separately and which combine to make up the total efficiency of a people.

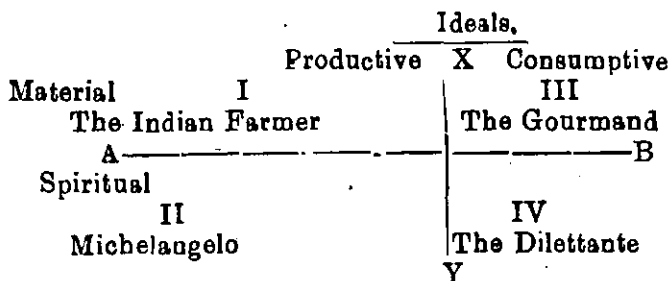
Individuals and societies differ as to their productive and consumptive ideals, as well as, to material and spiritual interests. The importance of having a productive instead of a consumptive ideal is often lost sight of. Professor Carver has brought out this point with great clearness. In his 'Foundations of National Prosperity,' [pages 295 & 296] we find the following from his pen.

PRODUCTIVE IDEALS SHOULD BE HELD UP TO THE CULTURED CLASSES.

"A particularly erroneous ideal permeates our so-called cultured or highly-educated

classes. This ideal emphasizes the distinction between material and spiritual interests, with the consequent tendency to despise material products, and those who produce them, and to appreciate only the products of the spirit and those who produce them. There is another distinction which is very much more important than this and which cuts straight across it. This is the distinction between the ideal of production and the ideal of consumption. One's production is one's contribution to the world. One's consumption is one's subtraction from the world. These two distinctions may be visualized by the following diagram :

. . INTERESTS.



"In this diagram the line AB, we will assume, represents the division between ma-

terial and spiritual interests, whereas the line XY represents the distinction between the productive and consumptive ideals. The crossing of these two lines makes four compartments in which we may place people of varying characteristics. One may have a productive ideal of life, but his field for production may be material rather than spiritual. This would place him in the first compartment, along with the Indian as farmer. One may also have a productive ideal of life, but one's field of production may lie within the spiritual zone. This would place him in the second compartment along with, let us say, the Michelangeloes. On the other hand, one's ideal may be that of a consumer and his form of consumption may be material. He belongs in the third compartment along with Falstaff or that farmer who "buildded his barns bigger" and then retired from business. Again, one's ideal life may be that of the graceful consumer, but his field of consumption may lie wholly within the spiritual zone. This places him in the fourth compartment along with

such spiritual Sybarites as the aesthete who regards it as his chief mission to "loaf and invite his soul."

"Now, it is the contention of the present writer that the line XY is very much more important than the line A.B; in other words, that the distinction between the productive and consumptive ideals of life needs very much more emphasis than does distinction between the material and spiritual zones of action." Moreover, it is his contention that there is a strong tendency among the so called cultured and highly educated classes to emphasize the line A.B rather than the line X.Y, and that this tendency is vicious and should be combated. Because that Indiana farmer is found on the productive side of the line X.Y, it is contended that he is an idealist in the proper sense.

Now productive efficiency is the ratio of actual production of an individual or society to the reasonably attainable maximum and optimum of production. We don't produce our best and utmost, and it is only when each one

produces his best and utmost for the longest time and to the greatest satisfaction of all concerned, that social production efficiency is the highest. This means provision of conditions, so that each one may make himself most useful according to his capacity. Human energy is wasted when it is unemployed or misemployed *i.e.*, employed on lower tasks instead of higher, employed less effectively on the highest tasks than it can be. A society to be efficient must produce its best and utmost in the easiest and quickest way known to it. Supposing eight to be the reasonable number of working hours, if we multiply the adult male and female population of a community by it, we get the total man hours available in the community. If we catalogue the material, hygienic, political, scientific, esthetic and ethical needs of the community and the number of man and woman hours they require for fulfilment according to the best available means and resources and if we next find out how many more man-hours it actually takes to satisfy, even 30, 40 or 60 per cent of these needs, we

can frame an idea of the social productive inefficiency of that community.

Thus now in the spinning of yarn, if the hours reclaimed be from idle talk, from spinning verbal yarn to spinning cotton yarn and if the best available cottage spinning wheel is universalized and best methods of manufacture taught to all, productive efficiency would increase. But if labour is directed from more effective methods of manufacture or more urgent employment it will be a waste. Humanize by all means the use of the best machinery, adopt the best machinery to local and cottage needs, utilise the cheapest available tool for employment till a better one can be had, but dont discard labour saving devices where they are available or can be rendered available. The ideal is to increase the productive efficiency, to use the best available tools and if it be found that by perfecting the tool a hundred manhours go to getting the perfected tool and the result is tenfold for every hour spent thereafter it is better to go after the tool, and secure the best within our means, and use that

to the exclusion of the cheaper but less efficient one. It is not a sin to manufacture the best tool and use it for swifter and better production, while at the same time we must reclaim from idleness immediately with what tools we have, not sit with folded hands for what we have not. We have to make the best use of what we have, but not to make a fetish of it and always try to render available the best labour saving devices, only seeing that they don't enslave but enfranchise.

Next to the productive efficiency we must take into consideration the Use-Efficiency of a community. Supposing the community has 5000 good books, if only 1000 of these are in circulation the use efficiency is 20%. Similarly the school and temple buildings if capable of use for 12 hours a day are used only for 3 months in the year and for 6 hours a day the use of efficiency is $\frac{6}{12} \times \frac{3}{12} = 33 \frac{1}{3} \%$.

An efficiency engineer in a factory always tries to find out and reduce the time for which men and machines have to remain idle through defective arrangements. So also a social

engineer ought to find out and reduce the time for which men and instruments for production and culture remain unused. Use-efficiency, of Libraries, Museums, Laboratories, Production Appliances and Culture facilities, would reveal the avoidable waste of these resources so far as their use is concerned. For is not efficiency in its essence discovering and installing methods of least waste.

Allied to use-efficiency is the consumption efficiency, in use of articles that cannot be used for a number of times but disappear when used. Thus if it be necessary for a man to use half a seer of wheat per day to keep him in health, and if he instead uses $\frac{3}{4}$ of a seer his consumption efficiency is lowered and he consumes more than is necessary.

Similarly storage efficiency, transport efficiency, distribution efficiency all these efficiencies have to be taken into consideration. Thus in storage efficiency, if precious books and pictures capable of lasting for a hundred years are so badly kept as to be destroyed in ten, the storage efficiency is 10%.

If a house capable of continued use for 200 years is, through not being kept in repair (*i.e.* neglect of the stitch in time)—to be pulled down after 50 years, the storage efficiency has been only $\frac{1}{4}$. Such wastes go on daily in society. Similarly needless reconstruction of a habitable house is a kind of inefficiency which may be avoided.

In considering transport efficiency we have to detect and prevent needless to and fro motions and use of defective methods of transport. If bulky, raw commodities instead of being worked up where they are produced are sent thousands of miles away for manufacture, and then the manufactured article retransported to the place of produce, we have wasted motions and wasted transport on a large scale. Similarly if goods keep changing places from one middleman's shop to another, say for ten times till they are delivered to the final consumer we have waste of transport. This leads us to work up our raw material as far as possible where it is produced. Similarly if a great teacher wanders from place to place instead of asking

his vast audiences to move to his centre he minimises transport. And so also if he travels by train instead of by bullock cart he increases his efficiency of transport. In every big city transport efficiency may often be increased by substituting trolley or tram transport for cart transport; cart transport for basket transport and basket transport for hand transport *i.e.* units of a greater and quicker carrying capacity for units of a slower and lesser carrying capacity.

Lastly we have to take into consideration Distributive efficiency, that is rendering commodities and services available to the persons who need them most and at the time that they need them urgently. This involves a revaluation of our conventional standards of property holding and property inheritance, an enquiry into privileges and monopolies, into trusts and cartels and every human arrangement that hinders the free flow of commodities and services to him who needs them most. This requires distributive justice as well as adjustment of available supply to felt need. A

suitable social mechanism has not yet been evolved for such distributive justice. This is one of the problems of the civilization of the future. .

Efficiency considers the wants, resources, efforts and satisfaction cycle. It ascertains the wants, resources and efforts, and the resultant satisfaction as compared with reasonably attainable maximum of satisfaction. Are the resources fully utilized, and utilized in the best manner? Are efforts applied sufficiently, and intelligently? Is the maximum of satisfaction attained? These are the questions which efficiency engineers deal with. At every stage they try to detect and do away with avoidable wastes, whether in the shape of idle men, unintelligent methods, defective processes, defective movement of men and material etc. The Social Engineer has to go further still. He has to examine the wants themselves, and the satisfactions, and the nature of man himself.

This leads him to examine a new kind of efficiency, i.e. efficiency in its psychic elements. Perhaps the most useful kind of efficiency

socially is the "efficiency of conversion" of more taxing and less satisfying wants to less taxing and more satisfying wants. Thus Ruskin would have the social engineer 'watch at the same time for all ways of gaining, or teaching powers of simple pleasure; and of showing that the sum of enjoyment depends, not on the quantity of things tasted, but on the vivacity and patience of the taste.' Efficiency of conversion is just this creating of taste for beauty available to all, the joy of the starry skies, the gardens and beauty spots, sea-side and other open air amusements, in short, taste for simpler and saner life. It also aims at converting the grumbler into a cheerful stoic, one who extracts satisfaction mentally, rather than habituates himself to dissatisfaction over trifles. If simple dress and simple modes of life become individually and socially as satisfying as costly modes now are, we have an instance of a high efficiency. Thus conversion to nobler wants and to a habit of grateful appreciation of what one gets, would help society a great deal.

We would conclude with Ruskin's words which exhort to such moral conversion :—

“ And if, on due and honest thought over these things, it seems that the kind of existence to which men are now summoned by every plea of pity and claim of right, may, for some time at least, not be a luxurious one; consider whether even supposing it guiltless, luxury would be desired by any one of us, if we saw clearly at our sides the suffering which accompanies it in the world. Luxury is indeed possible, in the future—innovent and exquisite, luxury for all, and by the help of all; but luxury at present can only be enjoyed by the ignorant. The cruelest man living could not sit at his feast, unless he sat blindfolded. Raise the veil boldly; face the light; and if, as yet, the light of the eye can only be through tears, and the light of the body through sackcloth, go thou forth weeping, bearing precious seed, until the time come, and the kingdom, when Christ's gift of bread, and bequest of peace shall be unto this last as unto thee, and when, for earth's severed multitudes of the wicked and

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the weary, there shall be holier reconciliation than that of the narrow home, and calm economy, where the wicked cease—not from trouble, but from troubling—and the weary are at rest.”

CHAPTER XXV.

A PROGRAMME OF SOCIAL EFFICIENCY—DISCOVERY AND DEVELOPMENT OF MEN OF GENIUS

The kind reader who has taken the trouble to go through the book so far, would like by way of a concluding chapter some practical programme of work laid out for the betterment of his community, his village or city. Observation, reflection and discussion, are all necessary for getting the most out of ourselves and our surroundings.

Social evolution has largely been the result of density of population, which gives rise to frequency and variety of contacts, diversity of type and difference of tastes and interests, which necessitate harmonious reconciliation and mutual accommodation. The density that counts in the discovery and development of men of genius of a society is dynamic density, or opportunities for frequency and variety of nature and culture contacts. In

the multiplication of selected nature contacts and culture contacts there lies one of the potent sources of social efficiency.

Civilization progresses through the discovery and development of men of genius, the agents of civilization, the spiritual capital of the community. Lester Ward has discussed this, and has brought forward evidence to prove that genius is present in all classes and all strata of society, and that, on the average, one in every 500, is a man of genius; but the number of men of genius actually discovered, and developed and utilized by society varies greatly according to the presence or absence of favourable physical, ethnological, religious, local, economic, social and educational environment. The average rate in even the best developed countries is one in 50,000. In India the average is hardly one in a million; we have hardly 300 men of outstanding merit. This shows that the actual resources of a society in effective working power are capable of being increased hundred-fold in countries like

England and America, and two thousand-fold in India.

In 1811 the great naturalist De Candolle wrote to Prof. Ward "My researches show that nurture is more important than nature. There are nineteen causes that favour the production of men of science in any country, and heredity is only one of these causes. De Candolle has really listed 20 of them and they are as follows:—

1. A considerable proportion of persons belonging to the rich or well to do classes of the population, relatively to those who are obliged to work constantly for a living, and especially to work with their hands.

2. An important proportion, in the wealthy or well-to-do classes, who know how to be satisfied with their incomes, with fortunes easy to administer, and consequently disposed to occupy themselves with intellectual matters that are only slightly or not at all lucrative.

3. Old time habits of thought and feeling, directed for many generations to real things and true ideals (effect of social heredity).

4. The introduction of cultured and virtuous foreign families having a taste for non-lucrative and intellectual pursuits.

5. The existence of numerous families having traditions favourable to the sciences and to intellectual occupations of all kinds.

6. Primary, and especially secondary and higher education, well organized and independent of political parties and religious sects, tending to stimulate research and to encourage young persons and professors to devote themselves to science.

7. Abundant and well-organized material facilities of scientific research (libraries, observatories, laboratories, collections).

8. A public interested in truth, and in real things rather than in things imaginary or fictitious.

9. Freedom to express and to publish any opinion, at least on scientific subjects, without its being attended with any serious inconvenience.

10. Public opinion favourable to science, and to those who pursue it.

11. Freedom to follow any profession, to follow none at all, to travel, to avoid all personal service other than that upon which one voluntarily enters.

12. A religious belief which makes little use of the principle of authority.

13. A clergy friendly to education, both within its own body and for the public at large.

14. A clergy not restricted to celibacy.

15. The habitual use of the three principal languages; English, German and French; with knowledge of these languages generally diffused throughout the educated classes.

16. A small independent country, or confederation of small independent countries.

17. A geographical position under a temperate or northern climate.

18. Proximity to civilized countries

19. A large number of scientific societies or academies.

20. The habit of travelling, and especially of sojourning abroad.

Prof. Ward has compressed these into 7 groups or kinds of environment, that must be

favourable, for the discovery and development of the greatest number of men of genius.

- (1) the physical environment.
- (2) the ethnological environment.
- (3) the religious environment.
- (4) the local environment.
- (5) the economic environment.
- (6) the social environment.
- (7) the educational environment.

Leaving physical and ethnological factors out of account for the moment, and concentrating on social factors helpful towards the development of men of genius, we have the religious factor which influences the development of men of genius. Galton lays particular stress on the undesirability of having a celibate clergy, as that leaves the ruder portion of the community to be, alone, the parents of future generations. The real environmental factors in speeding the discovery and development of men of genius, the agents of civilization, are besides the above " (1) the local environmental factor *viz.* centres of population containing special intellectual facilities ; (2)

ample material means insuring freedom from care, economic security, leisure, and the wherewithal to supply the apparatus of research; (3) a social position such as is capable of producing a sense of self-respect, dignity and reserve power which alone can inspire confidence in one's worth and in one's right to enter the lists for the great prizes of life; (4) careful and prolonged intellectual training during youth, whereby all the fields of achievement become familiar and a choice of them possible in harmony with intellectual proclivities and tastes."

Summing up in the words of Prof. Ward, "the resources of society may be enormously increased by abolishing poverty, by reducing the hours of labour, and by making all its members comfortable and secure in their economic relations. Any sacrifice, that society might make in securing these ends, would be many times repaid by the actual contributions that the few really talented among the hundreds of thousands thus benefited would make to social welfare; for talent is distributed all

through the great mass in the same proportions as it exists in the much smaller well-to-do or wealthy class, and the main reason why the latter contribute more is because their economic condition affords them opportunity.

A practical programme for Social Efficiency would require an organization of the community's human resources into associations for above purposes. Through association and pooling of culture resources and free discussion based on careful survey, the efficiency of the community would be increased. Such associations would increase the dynamic density or effective culture contacts, their surveys would multiply nature contacts, and so special intellectual stimuli and facilities would be increased. Every town of 3000 and over, and every group of villages totalling 5000 or over should thus have, unifying associations of the following kinds:—

1. A religious association, to counteract the narrowing sectarian tendencies, to seize upon the best in every sect and create mutual recognition, respect and tolerance. Such an

association would also see how far to prevent religious celibacy among the talented religious, as that means the infertility of the idealist elements. It would stimulate the various bodies to create and conserve highest human ideals and character.

2. A university association, with a central Library, Laboratory, Museum, Communal meeting centre, for use by the several associations, for increasing special intellectual stimuli and facilities, and with this an educational association, for diffusion of education so as to achieve the ideal of universal maximum of education.

3. An economic association, for provision of food, shelter and clothing, for surveying, conserving and developing in the interests of the area the material resources, as far as they can be developed by the well-directed labour of the population.

4. A social reform association, to educate all to a reverence for all human units irrespective of caste, creed and colour.

5. A health association, for preventing and curing prevalent diseases, by means of use of local drugs and doctors so far as possible, or importing of an improving element from outside.

6. An art association, for the creation, conservation, accumulation and distribution of communal beauty and enjoyment.

7. A political association, for studying how to protect the community from antagonisms of interest within the community and outside it. Such an association may have an arbitration board for minimizing and settlement of internal differences, and send its representatives for co-operation in the scheme of national defence.

Such associations would provide opportunities for culture contacts, and would through their surveys lead to intelligent nature contacts. They might thus aid in solving the problems of ample material production, of creation of favourable opportunities, and of environment for the discovery and development of the

available genius; say about ten men of outstanding eminence out of every 5000.

Workers are wanted to devote themselves rationally to the improvement of our country, so low in vital, economic, political, educational, artistic, and religious efficiency. The way out seems to lie through voluntary associations of the sort indicated above. For the full development of our human resources India would need a university association for every 50000, a full fledged university for every 500,000 units of her scattered population. Six hundred and thirty universities would thus be required each busy discovering and developing the thousand men of genius which, disinterested investigation tells us, we shall find, in such a mass.

Here is a call to service for the educated. Here is a call to the co-operators and non-co-operators, to rulers and ruled, to solve this vast problem in the interests of India, in the interests of humanity. Here we have human wealth, natural resources, abundant but undeveloped, all but un-utilized, and going to

waste. Here therefore is an opportunity for reclamation of this vast waste, an opportunity for Social Efficiency for making the best and utmost of our land, labour and life, for the glory of the motherland and service of humanity.

Let us start then with a thousand university associations with departments for religion, science, industry, health, art, social reform and practical politics. Let the hearts, heads and hands of the land come together, to take advantage of the great opportunity, and help to realise this great hope.

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