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MEDICAL INSPECTION OF SCHOOLS.

By Mr. A. S. VENKATARAMAN, B.A., L.T.,
Headmaster, Vayalpad, Chittoor District.

INTRODUCTION.

ONE of the results, direct or indirect, of the Great War is the increasing attention to the necessity of superintendence of the physical growth of the pupil. If the waste of health on account of bad air, food, light, seating, over-crowding, mingling of the sick and healthy is to be avoided, if it is admitted that the health of young children is a national asset, school hygiene should by no means be neglected and physical bankruptcy ought not to be allowed to stare at the faces of young children.

HISTORY.

Being essentially a pre-war scheme, it was held in abeyance by the Great War. In India, a stray attempt was here and there

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made by an enlightened voluntary management as by the Theosophical Educational Trust in its Primary schools in Madras. The State-wide attempt made in Travancore was only a modest beginning. This example is evidently now followed by Madras, whose Government after a prolonged consideration, sanctioned a scheme of grants-in-aid for the medical inspection of pupils in Secondary schools in 1920. Though sanctioned in 1920, the scheme was not put into operation for four years.

OBJECTS OF MEDICAL INSPECTION.

The objects of medical inspection are easily indicated. Apart from the detection of contagious diseases, the defects common to young children, the general capacity of a pupil to acquire knowledge in accordance with his mental and physical status (a sound mind in a sound body) will also be gauged. Again the best possible hygienic surroundings should be ensured for the child at school. At

the same time the practice of hygiene and healthful living both in school and at home should be taught. Above all, a close relationship between the school and the home should be effected, if medical inspection is to be a success.

SCOPE AND NATURE OF MEDICAL INSPECTION.

A fear is entertained in some quarters that the medical profession finds fault with every one's health and that it may result in the exclusion of the child from the school. On the other hand, the scheme is calculated more to include the boy in school than to exclude him, to render an unfit pupil to be made more fit and to prevent the fit from becoming unfit. That is the proper conception of the nature of medical inspection.

On the scope of medical inspection it may be observed at once, that the scheme cannot be expected to work wonders for the admiration of the public or to produce spectacular effects. This must essentially be a work of generations. At the same time it will be seen that medical inspection in an ill-kept school-room or in insanitary school surroundings is the very negation of the scheme itself. It includes in its scope therefore not only a systematic examination of pupils but also an inspection of school buildings, grounds and surroundings, class-room accommodation, privy accommodation, seating arrangements (adjustable seats are needed to suit pupils of varying heights), ventilation which has an important bearing on the vitality of pupils, and school hostels, licensed or unlicensed.

MEDICAL INSPECTORS—QUALIFICATIONS AND DUTIES.

A question naturally arises as to the qualifications of medical inspectors. I fear, not every doctor will prove a good medical inspec-

tor. In some of the progressive countries, there is a Director advised by a Board, and subordinate to the Director acting under the directions of the Board, there are a number of medical inspectors. What is required is a skill—and a training is essential for the purpose—on the part of the doctor in the diagnosis of infectious and skin diseases and a practical knowledge in examining the eye, ear, throat and nose. Besides being competent, the physician should also be conscientious and on the alert to remedy defects. For that matter, a popular local practitioner is always preferable to any other for obvious reasons. He is in touch with parents, he has a knowledge of their habits of living, the conditions of the locality and hence in live-contact with the home environment of the growing school child. He is an effective link functioning between the school and the home. A common conception is that the medical inspector should also treat the sick children. This is rather beyond the scope of the scheme but it must be admitted at once that for that matter, a private practitioner is better fitted than a Civil Assistant Surgeon "battledored and shuttlecocked" from place to place.

The duties of a medical inspector have already been in a way suggested. In the first place, the physical and mental condition of pupils should be examined. On an approved schedule, he should maintain a record of the examination of each child, and at the end of each year, he should submit a report. It has been ordered by the Madras Government that the correspondent of a school should submit a report to the Director of Public Instruction. Hostels also should be visited. Physical exercises in the school may be inspected. Lectures and demonstrations, etc., on the common ailments and

defects of children may be organised. He should advise the management on matters of ventilation, lighting, lavatory accommodation. Immediate action on the outbreak of infectious diseases should be taken. Advice on the periodic disinfection and cleanliness of the school should be offered.

METHOD AND ROUTINE OF INSPECTION.

On the question of the method and routine of inspection, the medical inspector is the best judge. He is bound to benefit by experience but the method that suggests itself to a layman in the light of a knowledge of the conditions in progressive countries, is this. As a child enters, his gait should be noted. On his age and name being questioned, the answer he gives, prompt or otherwise, gives some clue to his hearing and mentality. Points that are worthy of the inspector's minute attention are any structural abnormality, differences between the sides of the body, facial expression, colour of skin, jaundice, anæmia, mouth (cleanly or otherwise), mouth-breathing, carious teeth, hearing or vision in detail. Again, there are two ways of grouping children for purposes of medical examination—grouping boys of the same age or examining children of one class first before passing on to another. The first is likely to upset the whole work as children of the same age have to be hunted out from different classes. There is the added disadvantage as records cannot easily be sorted out for subsequent examination. The second seems to be the more practicable method. It hinders the school work in no way and the records are easily available for future reference. Again, when one class is being examined, the whole class need not be paraded. Only two pupils at a time need be absent from the class where regular work is going on. While one pupil is being examined in the room, another stays outside. When No. 1 returns to the class, No. 2 is examined with

No. 3 standing outside biding his chance. Each pupil is to enter with a form filled by the parent furnishing details on the previous history of the boy, disease, etc., while form B will be filled partly by the teacher and partly by the medical inspector.

MEDICAL RECORD.

This takes us on to the question of how to maintain medical records. Two systems have been suggested and each has its own advantages and disadvantages. The card-index system consists in devoting one card for each pupil and filing the cards of the same class loosely in a file, while the other contemplates the use of a bound note-book. The latter claims two advantages: (a) sheets are not liable to be lost; (b) facilities are afforded for a summary with a combination of groups at any time. Against these, the disadvantages are: (1) the necessity of carrying it to the medical inspector's office every time; (2) the difficulty in hunting out the same boy from the register at a subsequent examination. The advantages of the one, are, in other words, the disadvantages of the other system. In the final analysis, the card-index system appears to be better.

LIMITATIONS OF THE SCHEME.

As pointed out already, the scheme is defective in some respects.

Children in primary schools are not to be examined, where foundation is laid both for virtue and vice. Again, no girls are to be examined either in boys' schools or girls' schools; nevertheless it must be admitted that it has its own educational value. Children, understanding the value of periodical examinations, will look after their children in a better way when they become parents themselves.

PRESENT-DAY IDEALS AND THEIR BEARING ON EDUCATION.*

A GREAT man has said that the essential condition of all progress is the pursuit of an ideal towards which one ever tends but which one never reaches. This means that when one ideal has been attained, it is but wise to replace it by another still higher so that there may be continued progress. Without this change and adaptability to new conditions, all progress must come to a standstill.

It must be borne in mind that different ideals have influenced different nations in different periods in the history of the world. To take only a few examples. The Greeks aimed at the beautiful in culture, in philosophy, in oratory, and in the fine arts. The Romans were eminently a nation that loved law, order, and discipline. The Phoenicians were essentially a nation of merchants who worshipped gold. Shall I say that the Hindus have been characterised from time immemorial as a nation that has loved religion and philosophy? We may therefore take it for granted that every Hindu, nay every Indian for that matter, is at heart deeply religious and is also a bit of a philosopher. Self-resignation and a blind belief in fate have for ages influenced the activities of our forefathers.

While the East was thus completely resting on its laurels, the West whose civilisation began late has been able to steal a march on the East in material progress by reason of its advance in science.

* A Paper read by Mr. D. Abishekanathan, B.A., L.T., First Assistant, L.M.C. High School, Shiyali, at a meeting of the Tanjore District Teachers' Guild.

If the East had only continued in this state of lethargy it would have been left far behind the younger peoples of the West in the matter of civilization. The East would then have served as hewers of wood and drawers of water for the West for an indefinite period. God in His mercy was pleased to give the East a chance to shake off its lethargy and take its place among the forward nations of the world. This chance came with the Great War. It is said that everything works for the good of those that love the Lord. The Great War brought the East into very close contact with the West with the result that the East is no longer content to worship the West; and, the blind regard an Indian had formerly for a European is beginning to be a thing of the past. In short, the absolute sway of the West over the East has been shaken.

The Great War is said to have resulted in subverting about ten monarchies based on absolute authority. A wave of democracy has begun to sweep over the East also. This new spirit—the national spirit—has affected India also. It is no wonder therefore that India has begun to wake up, after all.

The spirit of enquiry is said to be absolutely necessary for progress in science. In fact, it is necessary for all progress. It is this spirit that has begun to make itself manifest even in India. Time was when Indians were a stay-at-home people. Travelling to Europe and the West generally has become more common now than ever before. The outlook of the Indian has become wider.

The advance of science which has led to the introduction of Motor Cars, Air-Ships, Aeroplanes and other useful inventions, has

resulted in nullifying distance, thus drawing the East more closely to the West.

The consequence of all these influences is to fill the Indian mind with new aspirations. These have expressed themselves in the new demands now made in all departments of Indian activities—political, social, religious, and educational.

As it is not my purpose in this paper to dwell at length on the political, social, and religious aspirations of India at the present day, I will dismiss these with only a few remarks on each and devote the rest of this essay to a fuller consideration of the educational aspirations.

In politics there is the demand for Swaraj, extension of the franchise to women, recognition of the principle of raising the down-trodden, etc.

Among the social ideals may be mentioned the desire to bring about a union between Hindus and Muhammadans, to do away with the barriers separating one section of the Hindu community from another, to create in the minds of the Indian youth a regard for industries, handicrafts, and manual labour of all sorts.

In religion also is perceptible a new spirit of tolerance towards those holding different religious beliefs. The old spirit of bigotry and intolerance is giving way to a more charitable spirit.

Lastly, we come to view the changes in the sphere of education. In passing, it may be stated that education of the right sort imparted to the masses will make the way smooth for effecting the desired results in the three spheres already enumerated. It is for this reason that the cry is often raised in these days to make education the first charge on

the revenues of the country. We shall, however, revert to this point later.

Education has to be viewed in its three aspects, physical, cultural, and moral.

The old idea of education concerned itself only with developing the mental side of a pupil. It is therefore gratifying to see that the Department has asked school authorities to watch the physical side of a pupil also by providing for periodical medical inspection in schools. But mere medical inspection whose aim is only to point out the defects in the health of a boy cannot, I think, go far to improve matters. Many parents already know what these defects are; but they allow the pupils to continue their studies in spite of these defects because their means are so limited that they cannot do otherwise. In such cases Government should provide for pecuniary help to be given to deserving parents.

As regards the change in the mental or cultural side of education, it is needless for me to point out how, at the present day, imparting knowledge is done, not by stuffing useful information into the heads of pupils at the point of the rod, if necessary, but by providing suitable means for drawing out the powers of the mind. In other words, provision is made for growth from within by making the pupil respond to suitable stimuli.

Provision is also made in the curriculum of each school in these days for moral and religious instruction.

I may next proceed to point out how the relative position of the teacher and the pupil has also undergone a change. In olden days a learned Pandit or Guru imparted instruction in the subject or subjects in which he was proficient, first to a small number of disciples who gathered round him. When this circle

widened in course of time, it became an institution corresponding more or less to a modern school in some respects. The disciple had to wait upon his master and render him all sorts of service—even menial service—to gain his goodwill. In this arrangement it looks as if the teacher was everything and the pupil was nothing. In the modern arrangement it is the pupil that counts more than the teacher. In other words, the teacher exists for the pupil and has to accommodate himself to his convenience; and not the pupil for the teacher.

Again in olden days, the text-book reigned supreme. When a few enthusiastic teachers handled the text-book in a rational or intelligent manner they were looked upon as demi-gods and were loved and practically worshipped by their pupils. This is no longer the case now. The text-book has been replaced by the syllabus. Research and extra reading have to be encouraged. A school with a well-stocked library and a set of intelligent and enthusiastic masters can turn out good work in these days, provided the material in each class is found to be of the right sort.

Another change that we notice is this. The national spirit has already begun to express itself in the demand for vernacularisation of studies and for the establishment of a separate University for each language area. Though the desire to adopt vernacular as the compulsory medium of instruction up to the III Form may be commended for several reasons, I do not know how far the same principle can be applied to the teaching in the Higher Forms, without necessarily lowering the standard of attainment in English.

The S. S. L. C. scheme of studies is considered by many, and I believe with justice, to be an ambitious scheme which really manufactures young men, a large majority of whom are thoroughly grounded in nothing or

next to nothing. It is the complaint of the older section of the masters that the S.S.L.C. product of the modern day is wanting in the solid and accurate all-round knowledge of the old Matriculate whose handwriting, spelling, and grammar were generally reliable. Can it be said that the too early specialisation implied in the present S. S. L. C. system is responsible for this deplorable state of affairs?

I cannot consider my task as finished without making some reference to the education of women and the Boy-Scout movement.

A competent German Missionary of several years' experience in India was once sounded by me regarding female education in this land. He plainly and honestly told me that he considered that education of women was getting top-heavy and things could not look better until the education of women took a different turn from that of men after a certain stage in the case of the majority of them.

Lastly, referring to the Boy-Scout movement, I may say that the Scout-training develops in the young the qualities of intelligence, resourcefulness, alertness, and loyalty. The unpractical and ordinarily non-observant Indian youth is trained to observe things well and to help himself in times of need. His motto is *to be prepared*; and his ambition is to serve his fellow-men. He has to place himself at the service of his God, King, and Country.

Every Scout has to regard another Scout, no matter to what nation or community he may belong, as a brother. For these reasons, the Boy-Scout movement may, in my opinion, be regarded as the greatest hope for the future of India.

In conclusion, I must state that until Government is able to earmark a greater proportion of the revenues of India for developing the country's natural resources, for starting commercial, industrial and technical institutions of approved merit under expert management in suitable centres, for fostering agriculture on up-to-date lines, for giving free instruction to the masses, and for improving the status of teachers generally, nothing great can be achieved in the near future. *Education should therefore be the first charge upon the revenues of this great land.*

HEREDITY AND EDUCATION.*

EVER since I became a teacher I have been feeling strongly the need for more of science to form part of the educational equipments of a teacher. The subject of his operation is the child. He has therefore to know that the child is a living organism and the science and art of his upbringing should be based upon biological principles. The teacher has to understand the physical and mental development of the child—the factors of heredity and environment—if he is to be a success in the pursuit of his profession. A course of lectures on the development of the child—the influences inherited and environmental—cannot but be useful to him. The breeder of animals seems to be more successful in altering and organising new characters—physical and mental—among the subjects of his operation than the teacher can claim to his credit. The tendencies and impulses that owe their origin to his stimulation and selection seem to be more favourably viewed by nature and transmitted from parent to offspring than generations of work that the teacher has been doing abroad. He seems to be left to begin anew what he has been doing from ages past. Hence the importance of the question of heredity to the educator.

What do we mean by heredity? It is the law by which parental characters are more or less found inherited by their progeny, and this is a fact well-known to most of you here. The physical features and the facial resemblances, especially of the eye and the nose, the formation of hands and legs, and even the gait, are mostly traceable to characters of the

* A Lecture delivered by Mr N. S. Jambunathan, B. A., L. T., F. Z. S. (London), Headmaster, Govt. Training School, Tanjore, to the Teachers' Association (Secondary Section) of the School.

mother or father or even of grand-parents. We speak of family likenesses and peculiarities as being inherited. How do these come about? That can be understood through a study of the science of reproduction.

We know that our body is composed of different tissues. We have the skin which forms the covering for the body, the muscle which enables us to move, the nerve whose concentration is the brain and elongation, the nerve, and lastly we have a varied collection of other tissues such as bone, blood, etc., under a comprehensive name "The Connective Tissue." Every one of these tissues when analysed is reducible to cells, which form the ultimate unit of all organic structures. The cell is a minute body consisting of the life substance known as protoplasm and a specialised portion called nucleus, which is the presiding agent in reproduction. Although man has a complicated body with various tissues differentiated in form and function to suit the complex work demanded of them, he originates in the mother's womb as a germ cell or an embryo, in an undifferentiated and homogeneous mass of cell material and a nucleus which contains within it all the promise and the potency of the varied structures that get developed in the full-fledged man. This embryonic or egg cell is the product of a marriage or union of two cells got from the father and the mother—the sperm cell from the father and the ovum or the female cell from the mother. They are the chips of the old block—the father and the mother—which have coalesced to form the embryo, from which the offspring is developed. The physical and mental characteristics of the parent find thus a physical medium for transmission to the offspring.

We shall next follow for a while, the changes taking place in the egg cell or embryo and the way in which the architect within, builds those wonderful structures that go to make up the body of man. The cell divides into two; each again into two and goes on dividing each with a particle of nucleus gathered from the original cell, until we get a cluster of cells. These arrange themselves in single file enclosing cavity, with a fluid in the middle. One half of the layer gets pushed in into the other half so as to obliterate the cavity within giving rise to a cup-like structure having a wall consisting of two layers of cells—the outer sensitive and protective and the inner respiratory and digestive. Gradually, even the opening gets closed and a third germinal layer gets formed between the two existing ones. The body cavity enclosing a tube—the digestive canal with a mouth and anus—is formed next. The germinal layers thus formed give rise to the different tissues. The outer one gives origin to skin, brain and nerves, sense organs; the inner layer—digestive tube and glands, the middle layer,—blood, bone, the urinary and reproductive organs. Thus from the undifferentiated egg cell, we get all the differentiated cells performing the different functions in the body. A set of cells set apart and modified becomes reproductive cells of the Ovary and the Testes, from which the egg cell and the sperm cell are derived. The matter of these cells continues almost unaffected from generation to generation as the germ-plasm which stands isolated from the rest of the tissues.

The offspring is thus born as a result of the marriage of the products of the two parents, and naturally children should resemble their parents in all particulars. But

no two children are exactly alike. They vary. This tendency to differ from the parents and from one another, may be spontaneous, due to the nature of the germ-plasm or the variations may be traced to the influence of environment, food, temperature, injuries and the like. It is natural variation that is transmitted. So, the breeder takes a hint from Nature, selects and fixes the characters he wants to develop in the breed, e.g., hornless and long-horned cattle. When animals and plants with distinguishing characters are crossed, e.g., white and black mouse, the resultants for the first generation are all whites or blacks as that character is dominant or otherwise in the parents. If intercrossed, the second generation gives us three-fourth black or white and one-fourth of the other colour. When a third generation is produced we get back to pure whites and pure blacks with fifty per cent. mixed hybrid forms. This is the well-known "Mendel's Law." By the application of this law, particular and desirable forms with desirable characters have been produced among animals and plants. Varieties able to withstand drought and disease, suited to particular localities, have been produced by breeders all the world over. The experts of the Agricultural Department, such as the Sugarcane expert, the Millet expert, the Cotton expert—these are conducting their Mendelian experimentation to evolve new varieties whose yield would be richer with ability to resist the inroads of climate and disease. The forms produced by the abovementioned methods are found transmitting their newly-inherited characters to their offspring as those variations or characters are those naturally produced as distinguished from acquired characters which are not transmitted.

The shaving habit of man has not resulted in any diminution of hair growth in his children. The circumcision practised by the Jews and Muhammadans has not saved the practice of the same upon the members of the next generation. The Chinese have been producing a malformation in the lady's foot as a sign of beauty and gentility. This has not been inherited by their children. The mutilations practised upon the ear and tail of dogs and the holes bored in the ears of men and women for generations—these do not happen to be passed on to the next generation. Such acquired characters cannot be inherited as malformations, mutilations; shaving and cutting affect only the regions of the body subjected to such operations. They do not affect the generative cells of the body and hence it is they are not inherited. Here it was that a controversy raged between Dr. Weisman of Germany and Herbert Spencer of England on the question of the origin of blind animals in caves (Kantaki, U.S.A.) According to Spencer, the blindness was put down to be an acquired character—due to change of environment as the offspring during their embryonic stages exhibited the growth and development of eyes. Crabs, frogs or fishes must have lost their eyes due to disuse of their organs in the dark recesses of the cave. Gradually the eye must have lost its power of sight and a blind generation must have come into being. Dr. Weisman explains the same thus:—Among the animals that lived near the caves with well-developed eyes, those born with weaker eyesight sought the caves and multiplied. Among the generation thus reared, such of them as had sharp vision left the cave. Thus after a few generations, diminution of the power of seeing got transmitted

with total blindness as a result of the breeding of animals, with weaker and weaker sight. The explanation seems plausible and acceptable. There seems to be here no chance for acquired character being inherited. Nature seems to have given a hint and environment has played upon the same and brought about the result.

Leaving aside a controversy of this nature, we have to learn three things from the above: that variations are naturally taking place and are not always useful; that use and disuse can make or mar the strength and utility of organs; and that environment is a very significant character in the retention or disappearance of particular organs.

Among the acquisitions of man, one of the most significant is disease. Some diseases are said to be hereditary, such as Cancer, Epilepsy, Fits, and Insanity; and there are families tainted with the virus of such diseases. It is not the disease as such that is inherited but tendencies, taints, pre-dispositions that are likely to be passed on from parent to progeny. If only we exclude the pre-disposing environment and rear the child in other conditions and in other places, he is said to stand a chance of remaining on safe ground from the so-called hereditary diseases. But malignant diseases, such as Cancer, Syphilis and Leprosy, cannot but poison the river of life—the blood stream—and this cannot but eventually affect detrimentally the purity of the germ-plasm, predispose the same towards the transmission of its newly-acquired character, viz., the disease, however much doctors may differ, and diminish its capacity to withstand the disease. Every taint or tendency thus transmitted may wait for the favourable season either in the lifetime of

their children or in their children's children to bear fruit and this accounts for the diseases lying latent in an individual and affecting the progeny during a favourable opportunity when the disease-resisting power is at a low ebb.

The educational transformations effected on the individual are also of the nature of acquired characters and so it is contended that the changes brought on the physical, mental and moral planes have no chance of transmission. The father however educated and cultured he may be, has to make his child go through the same laborious process to ascend his tree of eminence. The ebb and flow of genius in families was believed to be fortuitous and left to the play of chance. A study of the family-history of some of the world's great men such as Shakespeare, Bonaparte and Darwin, reveals the law of the development of the budding of genius into efflorescence of the great after which there is surely a decline. The energy conserved for generations seems to have been spent up in the product and the soil has therefore to lie fallow before another such effort could be made. The heritage of the Brahmin and his place in the Hindu polity have been matters of wonder not only to the Western on-looker but to everyone and sundry in this land of wonders. For purity, culture and refinement, no race or caste in India could stand a comparison with him. But who is the Brahmin and how did he acquire the characters that mark him off from the rest of the people? Historians tell us that a set of people among the Aryans who prized personal cleanliness, culture and spirituality or other—worldliness were set apart and constituted into a priestly class or caste. They multiplied among themselves, strengthened and enhanced the traits

and characters for which they were originally selected. The march of mankind may be onward or retrograde. Among the generations thus reared, such as could not keep up the high level in the social hierarchy degenerated into Non-Brahmins or Pariahs as you find specimens of the type among Brahmins even to-day. Such are cases of reversion in the language of Biology, and this may be traced either to lack of vigorous training during the plastic period of their lives, or to the victimising influence of distractions and bad company resulting in revolt against the social system to which they belonged.

The characters acquired by the Brahmin during several generations are not found transmitted as such. But it is said they are inherited by their children in the shape of tendencies or traits. There is also what is called amenability to cultural influences standing to the credit of the Brahmin child, as also a natural abhorrence at the sight of blood and cruelty. They will have to be improved upon by the educationist. What applies to the Brahmin applies to the child of every civilised being. The characters, traits and instincts of children, these are the materials for the educationist to handle, the natural endowments to be worked upon. He has to take note of the good as well as the evil tendencies. The work of the educator reduces itself to the improvement of all useful faculties of children so that he may in his turn leave a progeny with a better and richer natural endowment for future educators to develop.

Now to the work of the educator. Remembering that the child is an organism with senses active, mind receptive, muscles demanding exercise of some sort or other, the teacher adopts a system of education

suited to bring about an all-round development of the physical and mental faculties of children. By the application of proper stimulus he has to promote the self-activity of the child. The Kindergarten system, the Montessorian system of child-culture—these will give him hints to guide his activities and make child-life during the period, happy and useful. An all-round development is what is required. There should be an ample playground to run about and play, pet animals to care for, and school gardens to tend and rear plants. Plenty of colours, plenty of objects should characterise the equipment of the school-room. The child should have freedom first, freedom second and freedom last, to move about and handle things. Use develops an organ and disuse leaves it to degenerate. That is the biological dictum. A teacher, if he is to do his duty satisfactorily, must study the hereditary tendencies of the child, suppress all the evil ones by affording no opportunities for their development, that is, by disuse and afford all the opportunities he could for the development of the useful ones. In the scheme of work there must be full scope given for the exercise of all the senses so that children may discriminate not only one from the other, but also gradations in the same series. The eyes and ears and the tactile sense, the sense of smell and taste—these will have to be exercised and developed to the pitch of perfection. Such exercises will have their corresponding value in improving the mind of the child. The value of ambidextrous culture cannot be overrated. If the left-hand is not given the necessary exercise, it is not developed and the lobes of the brain that supply nerves to the left stands weak and undeveloped for want of exercise.

Not only the intellect but the emotions also require careful handling by the educator. The teacher must know the good influences of pleasure and happiness and the bad influences of pain and sorrow in promoting the growth of the growing child. Pleasure sharpens growth while pain retards it. Among the grown-ups, pain and sorrow affect detrimentally the health and vigour of cells, especially the generative cells. We have to note the idiot children born of anger, and the malformations and monstrosities in the new born children due very often to cruelties suffered by the mother during her pregnancy. The teacher must therefore guard himself against being harsh to his little children. He must, by example, sympathetically guide the child's instincts and cultivate in him habits of cleanliness, brotherliness, sympathy, respect and affection for those near and dear to him. Moral suggestions and example help the young in the latter stages of their life, for when the habits get fixed their observance becomes instinctive. The tendencies stand the chance of transmission when the proper time comes for the same. The student has now developed a character which is the crowning effort of education. The higher emotions, when properly worked, lead the student to frame his own code of life and build up his moral ideal.

There is in the man an apparent conflict of two ideals—the ideal to struggle and come out best in the struggle for existence leaving the weaker and the less competent to the wall: and the ideal of sacrifice by which man gives his best for the uplift and service of brother-men and to the members of the lower orders of the living creations of plants and animals. Both struggle and sacrifice are born and developed as the result of natural

selection. Man is after all a social animal. So his struggle in the universe is softened and mitigated by his instinctive desire to sacrifice to save men from pain, sorrow and death. We shall so fashion the social instinct as to stimulate as many men to help a larger number to survive in the struggle for existence. We must teach that it is the mission of man to carry on an ethical struggle to combat the cruelty and rigour of the cosmic struggle. We must redouble our efforts in the hope that our descendants "will learn quicker what we know well after great efforts, will execute easier what we have accomplished with greater effort, will withstand what injured us to the point of death."

So much for education concerning the improvement of the individual. The improvement of the race is no less important but it is society that must move here. Social ideals are the products of the cogitation of the best minds in society. In India, the great law-giver Manu codified the social laws, and built them up into a Dharma Sastra which every Hindu was bound to obey. Marriage among closest blood-relations stood prohibited. Marriage was denied to people who were victims of loathsome diseases and to cripples and lunatics. Our ancients paid a lot of attention to such details with a view to preserve the purity of the Aryan stock and promote their national solidarity. None of the above rulings appears to be binding upon us now. The present age is Kaliyuga, they say. We have become thorough sceptics, and we claim now greater individual freedom than was vouchsafed to us in the days of old. We discard our Dharma Sastra. We treat with contempt the warnings administered to us by doctors on the question of personal and family health and purity and race advance-

ment. We have degenerated into blind worshippers of Mammon. It is the dowry that counts in the settlement of the question of questions, the marriage and perpetuation of the family. The health of the boy or the girl, the presence of contagious or hereditary diseases in the family, the colour and the complexion of the party—these do not count in the settlement. It is money or jewels or both—the so-called status of the contracting party—Sambandhi, only these are taken into consideration. When such practices have taken possession of us, any one that cries "halt" is sure to be taken as a madcap.

Such materialistic considerations in the settlement of marriages are not confined to India alone. For we hear a man crying in the wilderness in the person of Sir Francis Galton with his science of Eugenics. He draws attention to the marked deterioration of the race due to unwholesome marriage customs. By selective breeding man has improved his cultivated plants and domestic animals. But he puts forth no systematic effort to improve the human race in physique, intellect and character. Here is a field for thorough inquiry and sustained effort. The savage lives a natural life. Among them the strong and the healthy survive and propagate as among animals of the lower orders of creation. But the civilised man leads a conventional life and so degenerates. Plain living and high thinking has left him. Men with contagious diseases and lunatics are allowed to propagate and perpetuate disease in families. Those that transgress the moral law—the criminal and the moral lepers, these should be put out of caste as did our ancients. For, as the Bible says, "The sins of the father shall be visited upon the children of the third and fourth generation."

Marriage relations with such families should therefore be tabooed. The weak and the diseased must go to the wall in the struggle for existence. We may help them to live for themselves but never allow them to mix, marry or contaminate the general stock of mankind and bring about the slow degeneration and ultimate extinction of our species. They are social lepers and must be severely segregated.

If matters are not remedied in time, the race cannot but deteriorate in health and efficiency. Lower types multiply more rapidly than men of the higher type and the race of bachelors and spinsters is said to be on the increase. Under the above circumstances the health and the vigour of the race cannot but go down in general average. We can by proper selection in mating, improve the physical complexion of the progeny by paying attention to small details in physiognomy of the parties concerned. Noses can be improved as also eyes; not to say of characters pertaining to health and strength of individual parts. Moral traits may be improved and criminal instincts eradicated. With a view to promote the abovementioned objects, we must try to build up a strong public opinion and start societies for the same.

1. To encourage marriages from healthy, vigorous, good-natured and long-lived families.
2. Marriages with other families should be discouraged despite dowries.
3. To create public opinion and censure the marriage of the unfit, the infirm and the cripple.

The scheme of work detailed above may appear too ambitious, almost impossible of attainment. If only the object merits the attention of the thoughtful, they will set the example and bring about the much-needed

improvement. Eugenic Societies in Europe and America are doing a great deal of work; and laboratories for experimental study have been opened and their researches are published in their journals.

I cannot conclude my address without quoting the words of Dr. Leighton who observes:—

"No true understanding of what can be done in the direction of improving the lot of generations to come, or of making the most of the generation at present existent, can be obtained by any who are absolutely ignorant of these topics. It is only by their study that we realise that the human embryo, which to become the human individual, consists, to a very large extent of characters and features which are unalterably settled for it beforehand to which nothing can be added and from which nothing can be taken away. In other words the possibilities for any individual are those which are pre-existent in the germ-plasm from which he or she originates. These possibilities, however, depend upon the environment in which the embryo, infant, child and adult is subsequently placed for their full expansion. In many other directions the inherited tendencies transmitted by the continuity of germ-plasm are unalterably and strictly defined. In many other directions these inherited tendencies can be so modified, drawn out or even partially suppressed by suitable surroundings of a hygienic, educative and moral nature, that if the process be taken in hand sufficiently early wonderful successes may result. These results are those for which the social reformer and philanthropist and the serious student of sociology are earnestly striving but it is only by a study of the sciences of heredity and embryology that accurate data can be obtained from which justifiable conclusions may be drawn."

The great fact which embryology teaches is that the past is unfolded stage by stage with certain omissions and additions so that in very truth, "The softest dimple in a baby's smile springs from the whole of past eternity, taxed all the sum of things to bring it there."

SOME MORE GEOMETRICAL DEFINITIONS.

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IN a previous article by the writer (Nov. 1925 issue), the definitions of a right angle, parallel straight lines, a tangent to a circle and two circles touching each other, as ordinarily given in text-books, were examined, and it was pointed out what changes seem desirable and what fruit these changes would bear. Before proceeding, however, to consider some more geometrical definitions, a word or two may seem necessary to be added in regard to the definitions of parallel straight lines and a tangent to a circle. The only justification, if there be any, for the present form of these definitions is perhaps that they embody in them the common notions associated with the figures or lines concerned, distilled and expressed in terms of mathematical accuracy. To be sure, a correct mathematical definition of a geometrical figure can be evolved out of the common notions connected with it. But it is difficult to decide which common notion is to be embodied in the definition, for the common notions connected with a figure are very often many, and the definition cannot be worked out so as to incorporate all of them in it. Even supposing that a settlement can be reached as to the common notion, is it one of the foremost requirements of a good definition of a geometrical figure that it should embody one of the common notions connected with it, *negating all other considerations*? On the other hand, it appears that this condition may altogether be ignored (even perhaps when the naming term of a geometrical figure is suggestive of a common notion), if an attempt towards the fulfilment of this condition leads to much

difficulty in other ways, if it brings forth a definition of little practical value and if it comes in the way of other more important requirements. Even at present there is many a good definition formulated without the implication of a common notion in view of other considerations. For example, a rectangle is defined as a parallelogram whose one angle is a right angle, while the common notion associated with it is that it is a quadrilateral with its opposite sides equal and a pair of adjacent sides at right angles. In fact, many of the common notions connected with a geometrical figure are its properties, to be deduced from a convenient useful definition. If a definition worked out so as to satisfy important requirements does not contain any of the common notions, these common notions are not done away with. They are still there to be theoretically proved or practically verified, and remembered and used for any purpose. Thus although a rectangle is defined as stated above, its properties are very often used in methods additional to that suggested by the definition itself.

To distil a common notion connected with a geometrical figure, to put it in an exact mathematical form and to call it a definition, irrespective of all other considerations and with no merit of immediate utility into the bargain (as is the case with parallel straight lines and a tangent to a circle) is one thing. To attempt *this* and get at an inaccurate definition, also not useful, is quite another thing. Of such latter kind seem to be the usual definitions of similar polygons and a regular polygon—both of which in the attempt to bring in a common notion have been rendered defective inasmuch as they involve the factor of redundancy and absolutely fail

to guide us in the construction of *any one* pair of similar polygons or *any one* regular polygon, unless and until certain theorems are proved and they are summoned to aid. The present definitions of similar polygons and a regular polygon are descriptions rather than definitions, and they are exactly similar to the defective definition of a parallelogram, sometimes offered by students in ignorance of a perfect definition, namely, that a parallelogram is a quadrilateral whose opposite sides are parallel *and equal*. It can be easily imagined what would be the theorems establishing the properties of a parallelogram and what would be the theorems stating the conditions under which a given figure is a parallelogram, with that definition of a parallelogram. A perception of the defects in such a definition and such theorems in regard to a parallelogram brings to light those in the present definitions of similar polygons and a regular polygon. The observation of the difference between the above inaccurate and the present accurate definition of a parallelogram will also provide enough guidance in removing the defects in the present inaccurate definitions of similar polygons and a regular polygon. But here an additional point is to be borne in mind that the perfected definition should apply to polygons of any number of sides.

As a preliminary to the examination of the definition of similar polygons, a comparison between this and the definition of congruent polygons might be made with much benefit, the definitions in the two cases being required to be on exactly similar lines. Two congruent polygons are defined to be polygons which can be made to coincide with each other on superposition; they are not defined as polygons such that all sides of the

one are respectively equal to all sides of the other and all angles of the one are respectively equal to the corresponding angles of the other. The former is a perfect definition which with the application of the principles of superposition readily leads to the construction of two congruent polygons; whereas if the latter were the definition it would contain the same defects of redundancy as in the present definition of similar polygons. But this latter is considered to be—and rightly—a property of congruent polygons, a property which is always associated with these figures and which readily follows from the definition without any proof. Now how are similar polygons defined? These are defined to be polygons whose all angles are respectively equal and whose corresponding sides are proportional. This definition as applying to two similar triangles becomes: Two triangles are said to be similar when their angles are respectively equal and their corresponding sides are proportional. The redundancy in this definition of similar triangles is clearly seen, if we remember that in order that two triangles may be similar, it is not necessary that *all* their angles should be respectively equal *and all* their corresponding sides should be proportional. Similarly for any two similar polygons. Two n -side polygons are similar under any one of the following three sets of conditions: (1) all the n -sides of the one are proportional to all the corresponding n -sides of the other, and $n-3$ consecutive angles of the one are respectively equal to the corresponding $n-3$ angles of the other; (2) $n-1$ sides of the one are proportional to the corresponding $n-1$ sides of the other, and $n-2$ angles contained by these sides of the one are respectively equal to the corresponding $n-2$ angles of the other; (3) $n-2$

consecutive sides of the one are proportional to the corresponding $n-2$ sides of the other and $n-1$ angles at the extremities of these sides of the one are equal to the corresponding $n-1$ angles of the other. These conditions are similar to the conditions under which two polygons are congruent, the word "proportional" being replaced by "equal" in the case of congruent polygons. Now any one of the above conditions can be taken as the basis of a perfect, useful definition of similar polygons which would readily lead to the construction of any two similar polygons. But such a definition would not be convenient. Whatever be the definition of similar polygons the fact that these polygons have all their angles respectively equal and their corresponding sides proportional would be a property to be derived by proof from the definition. An accurate, useful and convenient definition of similar polygons, as suggested by that of congruent polygons, might be attempted as follows: Two polygons are said to be similar when on superposition a pair of adjacent sides of the one can be made to fall in contact with the corresponding pair of sides of the other, and every other pair of corresponding sides are parallel and every pair of corresponding vertices are in a line with the common vertex. This definition suggests a simple method of constructing two similar polygons—the most common method used even at present in spite of the inaccurate and unworkable definition stated above and now in vogue. In the case of the acceptance of this definition the construction of two similar polygons as a separate problem with a proof would no longer exist. And the fact that such polygons have all their angles respectively equal and their corresponding sides

proportional would be properties of similar polygons to be proved and used perhaps in alternative methods of constructing similar polygons.

This definition of similar polygons as pertaining to triangles would be: two triangles are said to be similar when on superposition two sides of the one can be made to fall in contact with two sides of the other and the third pair of sides are parallel. From this definition a ready construction of two similar triangles follows by simply drawing a straight line parallel to a side of a triangle terminated by the other sides. Then the theorems on similar triangles would be: (1) In similar triangles all the angles are respectively equal and the corresponding sides are proportional. (2) Two triangles are similar when two angles of one triangle are respectively equal to two angles of the other. (3) Two triangles are similar when the ratio between two sides of one triangle is equal to the ratio between two sides of the other and the contained angle of the one is equal to the contained angle of the other. (4) Two triangles are similar when their corresponding sides are proportional. In any other theorem or deduction, either what is implied in the definition or the properties proved in the first of the above theorems may be used.

Now the question of the definition of a regular polygon can be easily and briefly considered, as it contains defects exactly similar to those of the definition of similar polygons, and as the mending of the definition is on similar lines. The common definition of a regular polygon is that it is an equiangular and equilateral polygon, the term "equiangular" being taken to mean

that all the angles are equal, each angle being $\frac{2n-4}{n}$ right angles in a polygon of n -sides and the term "equilateral" being taken to mean that all the sides are equal, each side being of any length. The redundancy factor in the above definition is clear, on remembering that a regular polygon of n -sides need not be said to have all its sides equal and all its angles equal, each angle being $\frac{2n-4}{n}$ right-angles. For example, according to this definition a regular 4-sided figure is a quadrilateral all whose sides are equal and each of whose angles is one right angle—wherein it is easy to find the redundant data. Now the conditions under which an n -sided polygon is regular are any of the following: (1) when all the sides are equal and any $n-3$ consecutive angles are each $\frac{2n-4}{n}$ right angles; (2) when any $n-1$ sides are equal and the $n-2$ angles contained by these sides are each $\frac{2n-4}{n}$ right angles; (3) when any $n-2$ consecutive sides are equal and the $n-1$ angles at the extremities of these sides are each $\frac{2n-4}{n}$ right angles.

Although a definition of a regular polygon based on any one of the above conditions could be an accurate, useful definition, it would not be a convenient one. After getting at an accurate, useful and convenient definition, the above conditions would be stated as propositions to be deduced from the definition. Also the fact that such a polygon has all its sides equal and each angle $\frac{2n-4}{n}$ right-angles has to be proved as a property. A convenient definition might be sought in the common method, used even at present, of

drawing a regular polygon. Such a definition would be: A regular polygon is an equilateral polygon whose vertices lie on the same circle. This definition, besides satisfying all important requirements, would suggest a direct construction of a regular polygon. For example, if a regular pentagon is to be drawn, draw a circle and draw five radii such that the angle between any two consecutive radii may be $360^\circ \div 5$, or 72° , and join the extremities of the radii—and it easily follows from the definition that the polygon formed is a regular pentagon. Now the fact that such a polygon is also equiangular would be its property, easily proved. If a regular polygon be defined like this the construction of a regular polygon as a separate problem with an elaborate proof would no longer exist. Again the theorem that the vertices of a regular polygon lie on the same circle, and the problem of inscribing a regular polygon in a given circle would also disappear. Lastly the question of proving a given polygon with certain data to be regular would be easier than at present.

CHEMICAL PROBLEMS AND THEORIES

FIRST PART

BY

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"HOW TO MAKE THE BEST OF SCHOOL LIFE?"*

WHY do we go to school? Perhaps some of you will say to learn. Others can with less justice say that. If I was a school girl and asked that question, I would say "because my parents send me."

Now I must say that our school life is the most important part of our whole life. Here we are prepared for the later life which we have to spend in the world, launched on our own resources. Consequently what we sow in our school days, we will reap later on. Our school life is but a reflection of the later life we are to lead.

But you are all young and do not realise the important phase through which you are passing. You have therefore your teachers before you who, realising your great needs, do all in their power to train you for the battle of life. Now what does this training consist of? The first thing of importance is knowledge. It is not just cramming in a bit of knowledge to be reproduced from X to Y at an examination. I have known boys and girls who accomplish that wonderful feat of "mugging up." I am sorry to say that many of our Madras University graduates are types of this, and curiously enough M. U. stands for "mugging up." Knowledge of this kind is not only useless but positively harmful. You cannot apply it. True knowledge can only be acquired after careful thought with the use of your common sense and reason but not mere memory. You learn in order that you may be capable of using that knowledge in time to come to earn your

* An Address delivered by Miss Nora Pereira, B.A., L.T., under the auspices of the Young Men's Literary Association, Municipal High School, Bimlipatam.

living and be of use to society. If you are going to make use of your knowledge, you must acquire it independently with your own effort, with hard and careful study. Teachers are only there to guide you, but you must do the real work yourself with concentrated thought and a sense of duty to yourself. It is sad to see how many boys spoil themselves by going from class to class only by copying. We shall leave aside the moral side of that action here. Copying may serve you to obtain a promotion but you are doing yourself a grave injustice. You are not preparing yourself for your later life. You are destroying your own faculties by not giving them free play. Now the knowledge you gain in school is not merely what is given you in the class-room. You must be so interested as to extend your knowledge elsewhere too. You have your libraries. Make a free use of them. Read a great deal. You are truly educated only when your knowledge is wide and extensive. Do not for a moment imagine that if you have mastered your text-books thoroughly, you have acquired all that is necessary. That is only a part of your work. Read a lot of magazines, journals and newspapers. Keep in touch with the modern world and the state of progress. Let your outlook be as broad as possible. You have your debating society. I would advise every one, who can, to join it. I can hardly emphasise the importance of such a society. Here ideas are freely exchanged. Each one gives his individual explanations of things. These ideas must be gathered by your own personal effort, either by reading extensively or by being acquainted with the subject by personal experience. These debates are very interesting and they will help you to take a keen interest in your school work.

When studying don't only study with a view to passing an examination. Study throughout the year intelligently and you will pass your examination easily enough. We come to school not only to get a bit of knowledge but also to form our characters. At home we are usually petted and spoiled and have very little opportunity of exercising those powers which give us a strong will. In school you are afforded ample opportunity of having your character trained and guided in the right path. What are these opportunities? You are asked to obey your teachers and the rules laid down for the whole school. Obedience to a higher authority calls for a strong will. If you obey cheerfully with a sense of duty, your character will naturally be formed. In all your work, be prompted by a lofty sense of duty. Don't attempt your studies as irksome tasks; you will not benefit in any way if you do. To study with a will a determination to do what you have to do, because it is your duty, cultivates the character. Take every opportunity afforded in the class-room and outside the class-room to act honourably. Be frank and open with your class-mates. Think that it is below your dignity even to entertain any such ideas. I know some boys who take a keen interest in being up to mischief, not necessarily immoral but mean and low. In school you have ample scope for enjoying yourselves in other ways. Further, boys should always speak the truth. Don't fear any punishment; take it manfully if you think you deserve it, but don't speak an untruth just to avoid a punishment. Use every opportunity to be honourable, truthful and trustworthy boys. If the teacher thinks he can trust you to accomplish a task and so imposes it on you, make yourself worthy of that trust and do that with your best knowledge and ability. Always pride yourself in the fact that you can be trusted to do a thing.

We shall pass on to a third aspect of your life in school. Here you are trained to live a life in society. You have to be useful to the society which you are to enter, whatever form of society that may be. To be of use to that society you have to cultivate social habits. To be a social success you must please society. It is only then life is pleasant to live. Otherwise it will become mean and sordid. In school you have many opportunities of cultivating social habits. There are some—very sad to say—who pass their Matric examination quite well, but who are shy and remain in the background in society and get embarrassed, when addressed with a simple question. They fidget, wriggle and stammer out an answer in an imperfect sentence. This is not true education. You must make bold and push forward but not be presumptuous. You must accustom yourself to speak freely without embarrassment. In class, speak out; talk a lot with your class-mates, teachers and friends you may meet outside. Learn to speak at your debating meetings; don't be afraid of committing errors. We learn only through failures. Then you have your school dramatic society. I hope every one of you is a member of it. It is a good training in helping you to get out of your shyness and making you speak distinctly and learn correctly. Further, if you take up the acting in your own hands, it will make you take the initiative and learn to be independent. It will train you to be useful to society in later times. Cultivate the habits of politeness and helpfulness in your dealings with your teachers and friends. If any of you are school prefects, be proud of that and discharge your work with earnestness. Be enthusiastic in helping in any work of the school. As Secretaries work for the common good of your school and you will later carry the same spirit with you.

Last but not least your school life embraces games—recreation of any sort. Don't be book-worms. Throw yourself whole-heartedly in your games. Play every day and you can justly be proud, if you are good in sports. But be careful that you don't allow a spirit of envy to enter your games. Play nobly and honourably. Play with the right feeling.

GROUP CONSCIOUSNESS AND HOW IT MAY BE UTILISED IN OUR SCHOOLS.

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MAN cannot live alone. The exceptional case of the sage only proves the rule. Perhaps even he is able to endure solitude because of his memory of his past social relations. Robinson Crusoe's life in the uninhabited island would have been intolerable to him, but for his hope of rejoining society in the near future. A man in solitary confinement has been found, sometimes, to speak aloud and presently start at his own sound, only to realise that his addressee was but a creation of his own imagination. Man, like the chemical atom can exist only in combination with other selves, the cohesive force here being the gregarious instinct, or what Giddings calls 'the consciousness of kind.'

This is as it should be. But for this instinct of association, there could be no progress of mankind. For his very development man requires the presence of other selves.

Let us start with the child. The child's first idea of self itself, which is quite essential for the development of its personality, is the result of its discrimination between its consciousness of the existence of others and its consciousness of its own existence, or between a sense of 'me' and 'not me'. Since these first other selves, the mother, the nurse, and the father, are the first sources of its satisfaction of hunger and the removal of its pains, it soon acquires a regard for them. Therefore it imitates their actions experiencing through such imitation, the feelings and other mental processes concomitant with such actions. It

acts out the part of a parent, teacher or elder brother, thus realising fully the meaning of the behaviour of other persons and also enlarging the content of its idea of self and of its capacities for feeling and action.

As its social circle widens into the family or the school, it comes in face-to-face communication with the other members of the group, through the language of action, expression and words, thus rousing more and more of its mental powers into activity.

We have often heard a pupil say 'I can't understand such and such a problem at home; but when the teacher gives a hint in the class, the solution dawns upon me.' Similarly a teacher at his preparation desk some time wrings his hands and muses 'How am I to make this point clear to my pupils?' But the moment he begins to teach in the class, he hits on the right method as if from an inspiration. Thus in the case of both the pupil and the teacher, face-to-face communication with other minds calls forth through suggestion, powers of their minds, of which they were not aware when alone. Hence the advantage of group education over individual education as in the case of Rousseau's *Emile*.

The story of Helen Keller is another illustration to show the mind is awakened through communication with other personalities.

On the other hand, 'a baby suckled by a wolf as in the myth of Romulus, and reared among brutes as Mongli in Kipling's *Jungle Book*' might grow to the stature of a man but he would only be a brute.' Hence the German proverb: 'One man is no man'.

Side by side with his own mental development, the individual develops a group consciousness as well. He identifies himself with his group (family, school, college, community

or profession) and considers its honour or shame as his own. He is face-to-face with its laws, its political, economic, religious and æsthetic traditions and current opinions. He soon acquires the habits and dispositions of mind peculiar to his group. Love of the group, its properties, its ideals and fear of violating its laws and of bringing the group low in the estimation of other groups, shape his hourly conduct.

He feels a collective mental force compelling him sometimes to act even against his wish. It is this group sentiment that makes a man perform certain ceremonies whose meanings he does not understand. It is this group force that compels him sometimes to sign a petition he does not approve of or to give a donation for a purpose he does not sympathise with. Rather than cut myself away from my group, let me sacrifice a bit of my independence—that is his attitude.

It is of course difficult to comprehend the nature of this group mind. By group mind is not here meant merely an aggregate of individual minds, from which one member can be easily separated without loss in the nature and function of either the group mind, or the individual separated. It is a complex whole in which each member is a partaker and a contributor. We may even say that the whole of the group mind is more than the sum of the individual minds; for, a group exhibits psychological features not to be found in the individual cases.

There is a physical counterpart corresponding to the individual consciousness; but there is no such counterpart for the collective mind. But evidence there is to believe in its existence, be it inside or outside each individual consciousness. If we take an example

of the temporary kind of group mind, such as that of an ordinary meeting, we find that we cry, laugh, do this or that while in company, though in our lonely moments, we should have desired to have acted differently. In a group individual differences get merged in the fusion of the qualities common to all its members.

When passions, prejudices and impulses prevail in a group, such fusion of common qualities results in riots and raids. But when each member of a group discusses the group problems from the standpoint of the group interests, and if such Conferences are held at intervals, giving time to each member to dispassionately consider the problems, as is the case with party and parliamentary meetings, the influence of the group mind each time the group meets, is beneficial to the group as a whole and also to the individuals.

It is this training in such small primary groups that is the foundation for each individual's right conduct in larger groups like the nation and the race.

Human beings can never get out of this kind of mutual influence, good or bad. Whether this influence will be good or bad depends largely on the training the citizens-in-the-making received at school, in the art of group-organisation.

We are told that group consciousness (the group-regarding sentiment) is very strong and healthy among pupils, particularly in the adolescent period (12 to 16). A writer says, "To the child congenial association is the very breath of life. Older persons can do without it longer, because they have learnt to draw mental nourishment by indirect communication." Another author writes, "His life is

now in companionship. It is necessary to him as a mother is to a child. If he walks, swims, rides, makes jokes, converses, it is as a member of a horde."

Since education is a preparation for complete living, each school should be a training ground also for citizenship. It should make the best use of the natural tendency for association in pupils, by placing them at school, in the midst of organised and selective social environments, similar to those they will have to adapt themselves to, in adult life. For the future leaders of a country may be sitting in our school benches, and their genius might be perverted for want of proper social training.

The Dalton Plan and the Project Method, the latter more than the former, are the children of this new social spirit also in education. Both of them attempt to bring each pupil in vital relation with every other in the class, each one comparing his own experiences with those of others and helping another or the whole class to get over difficulties in solving problems. The Gary system is another American plan, according to which they try to enthuse the children with social ideals by running two schools in the same building, between the same hours—the time-table is so arranged—and by getting the children to run mimic post offices, grocer shops and branch restaurants and by encouraging similar group activities.

Although such thorough changes of time-table, curricula and organisation as are required by the American plans are not possible or even desirable in our schools, and although most of our schools are not boarding schools, it cannot be difficult to so organise our school activities that there may be more opportuni-

ties than at present for the group consciousness among children to develop along right lines.

We find that children are keenly interested in group activities such as gardening, staging, music parties, scouting, games, and excursions. In every one of these, they learn to conduct their work through mutual help and to face difficult situations by co-operative effort.

Again the running of school manuscript or printed magazines, edited and managed mostly by pupils has great social value. A school magazine besides showing the pupils who share the work of fair-copying, compiling, illustrating, decorating and binding, the advantages of division of labour (a principle observed in any society) and besides rousing, under the powerful motivation of love of other people's approbation, individual self-activity along lines of self-manifestation, also serves the same purpose in a school, as the press in a society. It expresses the general opinion of pupils on school matters, by which no wise headmaster can remain uninfluenced. At the same time it can be the medium for the teachers to indirectly, and therefore effectively influence, through their periodical articles in it, the character and behaviour of the boys. Thus the magazine can be the medium of healthy, unobtrusive, mutual and moral influence between the elderly and the younger members of the same community—the school.

We are told that in Mysore, each district school has a paper of its own. One cannot see why what is possible in Mysore may not be possible in Madras. But these are the least respected occupations in our schools.

If such opportunities for group-work are not given to children, their good qualities of head and heart get rusted for want of use,

No standard of right behaviour can grow in their midst. Therefore the school rules imposed from without, which appeal to the teachers and parents as quite necessary for the well-being of the pupils, can have no such wholesome meaning to the pupils themselves. Further, any evil influence of bad environment, outside or inside the school, readily asserts itself in the children's minds. Hence subsequent moral instruction falls flat on their ears or even provokes their anger and ridicule.

Group consciousness can also be utilised to advance the work of learning in a class. Each class can be divided into a number of groups and each group given a special favourite name, 'The Star', 'The Rose' and so on, to symbolise, concretise and strengthen the group sympathy. It is, of course, best to allow the pupils to form their own groups, though in certain cases, the teacher should see his way to separate certain pupils from certain others, on consideration of mental achievements and the character of the pupils concerned.

Instead of comparing one boy's progress with another's and fostering as a motive for hard work, individual emulation, which often degenerates into such anti-social feelings as jealousy and hatred, and which leaves the less intelligent in the class unaffected, is it not better to make, as the Jesuit Fathers did three centuries ago, group emulation an incentive for progress? In the class, at a particular stage of a lesson, or after the lesson, one member of a group chosen by the group itself, will be asked to give, under instructions from his group, the substance of the lesson, or an account of the points of the lesson which most interested him or his group, while the other groups will be asked to watch and subsequently supplement or criticise him. The next day one member of some other group will be the speaker and the rest the critics.

Each pupil will not be tested directly in class, and declared as worth so many per cent. in English and so many per cent. in Arithmetic and so on. But the progress of his group will be compared with that of another group and each member of each group will thus be indirectly judged.

If a pupil should progress in his studies, one essential condition is that he should be capable of auto-criticism or he should be convinced of his weakness when the teacher points it out to him. Many pupils cannot be expected to have the power of auto-criticism, as it is a power which even adults lack. It is also our experience that several boys do not feel grateful to the teacher who points out their weaknesses.

But if each pupil is yoked on with some others whom he likes, the individual members try to discover one another's defects and criticism sheds much of its sting when it proceeds from friends. They soon set themselves to remedy their defects through mutual help, as they as a group, do not want to be beaten by another group.

In order to secure equality of competition between one group and another, it is good to group the pupils in such a way that each member of each group is good at a particular subject, when each pupil can act the role of a leader of others in his favourite subject and that of a follower in other subjects—a training in alternating self-assertion, self-effacement, most essential for efficient partnership in social activities in adult life.

We are told that the present system of teaching a number of pupils together at a time is but a poor compromise between desirability and practicability. Each pupil should be taught individually according to his in-

dividual tendencies; but because this is impossible for want of a sufficient number of teachers, we have to be content with teaching pupils in 30's and 40's. But if we adopt the group plan above indicated, this compromise will be shifted a little more towards desirability.

Of course this group plan for promoting learning is unsuited to children of the primary classes, as what MacDougal calls the self-regarding sentiment is keener among children than the group regarding sentiment. Or if at all they like to be in groups, they like to play in groups and not to study in groups.

Under this group system, prizes for excellent work will not be given to individuals as such, but to groups. Wren says: 'Such group emulation has all the stimulus of personal competition and eliminates the element of selfishness. But of all, it provides that without which all moral training is null and void, an ideal.'

But too much of group competition may lead to cliques in a class. Therefore the teacher should not show any favouritism to any particular group. When the several groups meet for instruction in the general class, he should make each of them feel that the interests of the whole class are as dear as its own interests. He should distribute his questioning and approbation fairly among all groups. He should act the role of a common leader for the whole class. Each group would have naturally though informally elected its leader. When cliques are foreseen, the clever teacher should hold an informal, gentle persuasive talk with these leaders and cement the differences that may exist.

There are several devices to keep a class off situations of discord. In a class conducted on

the above lines, pupils who are found to be talking with one another (these will be the members of the same group) will not be separated, in order to get an artificial quiet which is helpful perhaps only to the teacher, but will be seated together to satisfy their mutual craving for communication. Nor will the teaching require continuous concentration on the part of the pupils. It will be a process with stops in the middle allowing time for the pupils to read silently and compare their understanding in whispers or low talk. The teaching-learning process will alternate between psychological integration and disintegration a condition, we are told, essential for the wholesome working of the whole class as a psychological unit.

A second device for promoting class consciousness is to distribute the common class work such as collection of materials for the museum, drawing of maps and charts, decorating the class-room and looking after its sanitation and furniture, among the various groups.

A third device is the institution of a literary or debating association for each class. Meetings of this association should form part of the school time-table with the class teacher as the presiding officer. But the discussions in these meetings will be worthwhile only when the subjects chosen relate to the pupil's problems. 'The pen is mightier than the sword', 'War is a blessing in disguise'—such subjects should give place to subjects as 'My difficulties in Arithmetic', 'Shall we have school from 8 A.M. to 10-30 A.M. or from 10-30 A.M. to 1 P.M.?'

Lest there should be unhealthy class rivalry, sympathy between one pupil and another as members of a larger community, the

school, must be developed. Three conditions are necessary for this.

First, the school should have only a small strength. If the strength is very high running above a thousand, opportunities for co-ordination and frequent communication between one class and another will be limited and no feeling of corporate life can be developed. It is common experience the smaller the population of a community, in a locality, the stronger the group sympathy among them. The smaller group wants to make up by strength of *esprit-de-corps* what it lacks in point of number. Of course such a remark cannot be palatable to managers who want to make money by running schools.

The second condition is a good tradition. In the main hall of the school, the photos of past teachers, athletes and captains, group photos of old teachers and students, trophies the school has won in competition with other schools, must be hung and prayer meeting or moral instruction classes should be held here. If possible, biographies of distinguished old teachers and students may be placed in the hands of the pupils. Other causes that accumulate good tradition are a good co-operating staff, old boys' associations, well-organised prize distribution meetings, and inter-class and inter-school sports competitions.

The third condition is, the headmaster should be, by virtue of his zeal and faith in his work, the centre of love of the pupils and teachers, the link between one member and another of the community of the school. The headmaster is the king of the school. Perhaps this jars on democratic ears. But there is no escaping the point that in a society, loyalty to the king is as strong a unifying force as its religion or literature. The English own their solidarity

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as much to the king as to the Bible or to Shakespeare. Loyalty to a principle grows out of loyalty first to a person, then to an institution.

In such a well-organised school, breaches of discipline will rarely occur; for, each pupil would have learnt through his group experiences, when to assert and when to surrender himself. There would have grown in the school, a sound public opinion or tone, which will be an effective check on, and a remedy for, individual freaks and eccentricities.

But here and there one or two grown-up boys, perhaps imported from other schools, may, by secret persuasion, or by open intimidation control a following and create in the pupils an attitude of defiance to authority. The moment such are found out, they should relentlessly be sent out of the school, before their infection spreads. When breaches of discipline arise out of other causes, the proper attitude for punishment will be: 'You have disobeyed your teacher, you have broken the law, and to this extent you have injured your school, blackened its name and reputation, and wronged your school-fellows past, present, and future.'

In this connection reference has not been made here to the prefect system or to the system of maintaining discipline solely through elected committees of pupils, because, except under ideal conditions, the one may degenerate into a spy-system and the other into a farce.

It will now be seen that an organisation of school work based on a knowledge of group consciousness among pupils will press on them in course of time, the truth that real individual or collective progress in learning or character is impossible without competition

and co-operation going hand in hand, first among their primary immediate groups and without this double process of competition and co-operation extending its operation in a concentric way to their class and to their school.

Still our preparation of the pupils for social life is not complete. Each pupil should be trained to think and feel not only in terms of his school, his village, his town or his country, but also in terms of universal interests. He should be made to realise through the study of his own and foreign literatures and histories that 'the world, a nation, a tribe, a sex, is the medium of the individual mind as an ocean, a sea, a river or a pond is the medium of a fish.' Through its immediate sphere it touches the outlying world and is touched by it, though its direct activities are within this circle. Each pupil should be trained to realise that he is a member of a universal brotherhood, so that he

may readily respond not only to such appeals as 'India expects every man to do his duty' but also to such appeals as 'God expects every man to do his duty by his fellow-being, be he near, or be he away, be he a native of the soil or a foreigner.' The pupils' heart must vibrate in sympathy with suffering humanity in Japan, under the after-effects of an earthquake as readily as with the sufferers under the after-effects of floods in Tanjore. No opportunity for such instruction or for the operation of such sympathy should be let slip by a good teacher.

These universal appeals may not find immediate response in the hearts of all pupils; but the few who imbibe high ideals of life consciously or unconsciously raise their own standards of life. Such are imitated consciously or unconsciously by other members of their groups and the lives of the groups themselves will be evolved to a higher plane.

COMMERCIAL ARITHMETIC

FOR

SECONDARY AND COMMERCIAL SCHOOLS

Prepared in accordance with the S. S. L. C. Syllabus

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OPINION.

Mercantile Miscellany, April 1926:—The enterprising firm of Messrs. Srinivasa Varadachari and Co., Mount Road, Madras, have sent us a copy of *Commercial Arithmetic* for S. S. L. C. students which they have published. The book is a very useful addition to the existing literature on the subject and bids fair to be regarded as a Standard Text-book on the subject on this side. Needless to add that the book being written with a Commercial bias it should prove invaluable to all youths aspiring after commercial or business career. We congratulate the author, Mr. T. V. Subramania Iyer, and the Publishers for the neatly got-up little volume before us.

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NOTES FROM A TEACHER

Prepared by

Mr. CH. V. JOGARAO, B.A.,

Maharajah's College, Vizianagram

Re Memorandum on Secondary Education issued by the Educational Department of Madras.

Introductory.

1. These notes are prepared in the light of the details of the Memorandum furnished in the announcement that has appeared in the *Hindu* of date 23-7-25. So far as could be gleaned from the article in the *Hindu*, the points for discussion at the ensuing Conference come under some main heads such as the following:—

- (a) Definition and Scope of Elementary and Primary Education.
- (b) Vernacular mediumship.
- (c) When English should begin.
- (d) Bifurcation—The sides—Vocational or Professional training.
- (e) Courses and Examinations for the Secondary stage.

If we take note of the fact that a century of educational activities has left these problems unsolved, it goes without saying that all these are very intricate in their character and require a very careful, protracted and judicious discussion in an open Conference. If an humble teacher can have his say on these matters, the following may be perused and taken for what it is worth.

(a) Definition and Scope of Elementary and Primary Education.

2. The present system inaugurated about 1906 has drawn a distinction between Elementary and Primary education; and for some time after its inauguration, students in Elementary schools were not allowed to be

admitted into the corresponding classes in Secondary schools; they had to be admitted into the very lowest class in Secondary schools, i.e., the 4th class. This restriction has been, however, subsequently withdrawn. This state of things speaks volumes as to the haziness of the views at the time of introducing this broad distinction.

According to the distinction originally drawn the Elementary schools were contemplated to give more practical instruction to the students. Experience of the last nearly two decades has proved, perhaps conclusively, that this hope has been in vain; and what practical benefits are accruing to students in Elementary schools any more than to those in Secondary schools, only Heaven knows; and the benefits, if any, are imaginary and nominal. There is no use puffing up an empty state of things.

3. The truth about it all is that vocations in India are closely intermixed with caste; and we can fairly say that 'Caste Guilds' form the characteristic feature of the industrial life in India. No one of one caste would take up the vocation of another caste; they do not require any training at school for the vocation of their own caste, since they can very easily master it by apprenticeship in their own homes under their own kith and kin. The training in indigenous vocations, capable of being given by school-masters, such as they are just now, is but a poor apology to it—more a shadow than the substance. The teachers are not trained for it and are not qualified for the task. As regards those vocations based upon Western advanced lines, our schools and the country have neither the staff nor the equipment to do justice to this task. We thus see that the idea of furnishing practical in-

struction in Elementary schools is simply futile.

4. In diverting the activities in Elementary schools to the practical side, the requirements of general Secondary education are practically omitted and disregarded. The students in Elementary schools, therefore, lose all chances of Secondary and Higher education. And even if any of them should choose to join a Secondary school, their progress is retarded for lack of adequate preparation for it. They are therefore double losers with no benefit from their education but literacy. For all these reasons it is desirable that no time should be lost in doing away with the distinction between Primary and Elementary education. All schools teaching for this stage should be classed as Primary as of old.

The course must extend to 5 years from the age of 5 to 9, as at present. The aim at this stage must be to impart :—

1. The Three R's in the Vernacular (Literacy).
2. Such elementary knowledge as is suitable for the age in the matter of Civics, Geography, Morals, etc.
3. Hand and Eye training.

The standard in the Vernacular should be raised and insisted upon.

5. English should not be taught at this stage as children are yet too tender to study a difficult foreign language. The time now allotted to English may be utilised for improving the standard in the Vernacular. As a matter of fact we find boys coming from rural Elementary schools, where English is not taught in classes 4 and 5 are far better in the Three R's and literacy. So it goes without saying that premature introduction of English

is responsible for students' weakness in the Three R's and the Vernacular.

Since the students' knowledge of vernacular is very meagre when they enter the 4th class and since their attainments are too low to enable them to grasp the elements of a foreign language, progress in English is considerably retarded. Even in foreign countries the study of a foreign language is not introduced so early. For all these reasons it is a matter of urgent necessity that English should be expunged from the courses for the Primary stage.

6. The Primary School Leaving Certificate.

The attainment of the standard prescribed for the Primary stage should be recognised by a certificate awarded on the results of an external examination instituted for each district and controlled by the District Secondary Board working in conjunction with the Elementary Education Council. This certificate should be the qualification for eligibility to admission into Secondary Schools and for public service of inferior character.

7. (b) Vernacular Mediumship and Instruction.

Vernacular should be the first language to the end of the Middle School course. Capacity in the Vernacular should be insisted upon. Weakness in the Vernacular should be a disqualification in the matter of promotions in the Primary and Middle school stages. Vernacular should be the medium of instruction to the end of the Middle school course.

8. (c) When English should begin.

English should be introduced in the First Form class, *i.e.*, Middle School stage, but not earlier.

Reasons :—

1. Children are immature on account of their tender age, being below 8 and 9 years.
2. Their intellectual attainments are yet too tender to be taxed with the study of a difficult foreign language.
3. Their meagre knowledge of the vernacular and its grammar retards their progress in English.
4. When they reach the First Form, they are better fitted for the task of learning a foreign language, as the three above defects would disappear.

9. An objection :—

It may be said that 8 years' study of English in the Secondary Schools has failed to give pupils the requisite command of English; and reduction of 2 years may tell upon the progress in English.

Explanation :—

But the present state of things is due to the imperfect nature of the time-honoured system of English instruction which is made to proceed according to some lines stringently enforced by the Department. They are persistently rejecting certain factors which are declared essential to the teaching of English by eminent official authorities and professional experts; and they are, likewise, enforcing a system which is distrusted in every respectable quarter. The Calcutta University Commission has recorded the view that, if certain factors are introduced, pupils will attain to far better command in English in half the time. The Royal Commissioners on Public Services in India express it as their considered opinion that the reformed system has not been successful and emphasized the view

that more practical schemes should be welcomed and encouraged. The last Quinquennial Report has recorded the view that methods of teaching English have to be renovated. If only the Department or the Ministerial authorities would be pleased to make arrangements for a searching inquiry into the present system of English instruction by appointing an open tribunal or committee, the right method would present itself and explain its claims for a trial in schools; and such a scheme, if given a trial would give students a far better grounding in English in half the time, *i.e.*, 4 years.

So, the Department need not be afraid that progress in English will be retarded by giving it up in the Primary stage. Six years of study from the First Form upwards must suffice for the task under more rational and practical methods.

(d) Bifurcation—Alternative Courses.

(SIDES)

Stage.	Age of pupils.
Primary stage	5—9 years.
Middle school stage	10—12 "
High school stage	13—15 "

10. Preparation for vocation or living and the study of professional or utilitarian subjects should be outside the pale of general education. The schools as they are now staffed and equipped, or even can be at a near future, are least fitted for the task. There is reason to fear that both will suffer. Neither can receive full justice.

11. As a matter of fact parents send their children to English schools for successful scholastic career leading to a certificate, a qualification for service. They do not think of vocations, trades, etc. If the Department introduces the subjects into schools and calls

upon students to take them up, they do so as a matter of compulsion; but in their heart of hearts they are dead against them. They know them to be useless and involve a wastage of otherwise useful time. It is only when their wards are found to be failing at school, they think of putting them in an office, railway or shop. Otherwise they will even sell off their little patrimony and even the sacred jewel of the mother to see their son reach the highest point of the educational ladder. So, it would be simply cruel on our part to ask the pupil what he is going to do or predestine his whole career while he is still in a budding state.

12. As regards vocations, those that have followed the movement see clearly that nobody has yet been able to enumerate the subjects which would enable pupils to eke out an independent living. The idea is found to be fruitless in the Elementary School system. The subjects so far introduced in the Vocational Training Class at Saidapet are found to be quite unsuited to serve the purpose. When we have no definite subjects in our view, and if we take note of the fact that our views in the matter of a feasible and effective constructive programme are hazy and aimless, it would be no more than a leap in the dark to thrust vocations into the curricula of our schools.

13. The Memorandum proposes to give 8 hours a week to the practical side which means $\frac{1}{3}$ of the school time. Already there is the complaint that school instruction is inefficient in every subject; and if we cut down the school time for general education by $\frac{1}{3}$, efficiency will suffer still more.

Vocational training requires a longer application than 8 hours a week. The training

such as a school can give, is too meagre for the purpose and those trained in these arts in schools are far inferior to those following them outside school. Thus the students with vocational training in schools must fall back in the race for employment. In this way introduction of vocational training in schools may prove detrimental to general education and fruitless for practical sides.

14. When I say all this, it should not be taken to mean that I belittle the vocational aspect. Far from it; there is great necessity for them and they are a matter of even urgent necessity. What I mean to say is that this is not the right means to remove the misery of unemployment. The Government will do well to open separate schools for the purpose one or two for each district; see how they work and what useful purpose they serve and how students benefit by the instruction given in them. If their usefulness comes to be realised, the backward students will themselves rush to them, thereby relieving our schools of their drag on efficiency. Such schools would be a boon to the country.

In result, I have to say that the distinction of Higher Elementary Schools and Classes or Forms in Secondary Schools should be done away with. Both should adopt common courses of a general educational character.

The idea of tacking vocational, professional and utilitarian subjects to the curricula for Secondary schools should be given up.

(c) Secondary Education—Courses and Examinations.

15. Secondary education begins when the Primary stage is passed; and may extend over a period of 6 years to be divided into two stages of equal length to be designated, Middle and High. Admission to this stage of education must be made on the strength of the Primary School Leaving Certificate or any other equivalent to it. The transition from one to the other of these 3 stages should be gradual and courses have to be devised accordingly. The accompanying statement may indicate the lines on which such courses may be drawn up:

SCHEME OF COURSES FOR GENERAL EDUCATION.

Primary Stage—5 Classes, 5—9 years.	Middle Stage—Forms I—III, 8 Classes, 10—12 years.	High School Stage—Forms IV—VI, 8 Classes—13—15 years.
(1) Vernacular (literacy) Three R's.	(1) Vernacular (literary studies to begin with).	(1) English (1st language)— literary pieces to begin with.
(2) General knowledge— Geography, Civics, Morals, etc.	(2) Mathematics:—Arithmetic Algebra, Geometry.	(2) Vernacular or Sanskrit.
(3) Hand & Eye training.	(3) English (Second language) [literacy].	(3) Mathematics—more ad- vanced.
(4) Physical Education.	(4) General knowledge:— (a) (b) (c) Geography. El. Science. History of India. General Prin- Syllabus to General ciples & pro- be modest outline. minent details and practi- cal. (5) Manual training. (6) Physical culture.	(4) General knowledge:— (a) Geography — advanced and minute study. (b) History of England to be correlated with Indian History. (c) Science—Physics, Chem- istry, Botany, Hygiene, &c. (any two to be taught in a school.) (5) Physical culture.
	N.B.—Sanskrit or Classical language should not be introduced at this stage.	N.B.—1. All to be compulsory. 2. There should be no special- isation.

Specialisation.

There should be no specialisation in the High School. Pupils are still too tender for taking up specialised study. Their aptitudes, inclinations, and tastes cannot have been formed when they are still 12 or 13 to justify our calling on them to choose a particular subject or give up another.

Secondly, there is another stronger reason to give up specialisation at this stage. It is but right that those who pass through the Secondary stage should be all-round, since it is such a capacity that would stand in good stead for their higher studies. When they are deprived of a sound mental discip-

line founded upon a close study of variegated subjects, they lose for ever the chance of turning out well-informed and of possessing the mental discipline adequate for the labour spent on Secondary education.

Thirdly, since the men leaving at the secondary stage mostly take to the teaching profession and lay the foundations of education in the Primary and Middle school forms, they may fail to do justice to their task for lack of information on the variety of subjects they have to handle. For instance, those who take up Mathematics may know no Geography at all; and those who take up History may not know that the three angles of a triangle are equal to two rt. angles. If such men are

made to lay the foundations of education, we should not be surprised if educational outturn goes down year after year and even comes down to zero point.

So, it is not to the interest of either collegiate education or educational foundations in the country or disciplinary uplift of the nation that specialisation should find a place in the Secondary courses.

Examinations.

16. EXTERNAL:—Promotion from the Middle to the High School stage should be made on the strength of an external examination to be conducted by the District Secondary Education Board. Separate minima to be insisted upon except in knowledge subjects in which a joint minimum may be prescribed to lighten the strain.

The practice of selecting students for appearing at the terminal examinations should be condemned. All students of the terminal forms III and VI should be sent up for the external examination.

17. Since examinations influence teaching methods to no small extent, the schemes of examinations should be so framed that due attention may be paid to the chief factors conducive to efficiency in each subject. For example, a paper in Translation both ways is necessary under English as 1st or 2nd language by way of emphasising upon the importance of translation as an indispensable factor in the teaching of English. Special minimum may be insisted upon in this part of the test after the model of the Cambridge Senior Locals who inaugurated this innovation in 1917 as a step necessary to improve the methods of teaching foreign languages. The schemes in other subjects will have to undergo similar changes.

Internal Examinations:—

The examinations conducted in schools for regulating promotions should be of the same nature as the external examinations. Promotions from class to class in each stage may not exceed the proportion which the school passes at the terminal examination bear to the number in class. This step would be an effective check against indiscriminate promotions.

"FROM A RURAL SCHOOL-WINDOW."

(With four illustrations.)

WITH A FOREWORD FROM
The Hon'ble Sir A. P. PATRO, Kt.,
Minister of Education, Madras.

BY
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SRINIVASA VARADACHARI & CO., 4, MOUNT ROAD, MADRAS.

UNIVERSITY EDUCATION IN INDIA.

By Mr. K. RAMA AIYAR.

Teacher, S. M. V. School, Trivandrum.

HIGHER education in India is spreading by leaps and bounds. During the course of the last two decades the number of Universities has increased twice as much again as before. There are now fifteen of them in India and new ones are still all the rage. Such phenomenal birth-rate must challenge attention.

Higher education has been the making of modern India. It gave her the impulse under which a diverse people has been fused into a nation. Moreover it is the keystone of national well-being. We can as well make bricks without straw as keep fit without education. Therefore this rapid multiplication of Universities is an earnest of the future greatness of the nation.

And since the measure of that greatness must necessarily depend upon the quality of the education that these Universities afford, it is highly imperative that no pains or expense is spared to make it as perfect as possible.

Although University education has done us immeasurable good, it has also—save the mark—hurt us not a little. The acute problem of unemployment among the educated classes is staring us in the face. In the struggle for existence which has now assumed a portentous aspect, the *intellectuals* will bite the dust if the present system of higher education with its inexcusable indifference to the all-important question of bread and butter is allowed to continue for long. Food is the basic factor in life and if there is plenty of food in a country, the happiness of its people is a dead certainty. If food is lacking, dis-

sensions and discontents accrue and things will be all anyhow in the land.

The founders of our Universities practically shut their eyes to this absorbing problem and lavished no end of thought and wisdom on courses of study calculated to make University students scholars, thinkers, scientists, lawyers, politicians, statesmen, everything except bread-winners. Every Scout and Girl Guide must know to cook their own food. Every citizen must know to make his bread. This is the acid test of efficiency.

Much of the communal rivalry that disfigures Indian nationalism to-day is due to an education which does little more than qualify us for Government service whose capacity to absorb the products of our Universities is extremely limited.

Our Universities are exotic being merely bad copies of British educational institutions. We must not forget that Britain has an empire on which the sun never sets. The graduates of British Universities can cast their nets wide and gather emoluments to their hearts' content. India is our only stay and she is not even free to yield us her utmost. It is time that we extinguished this genius for copying.

Our Universities are exotic in another sense also. They work through the channel of a foreign language and utterly stultify themselves. English is the language of international relations, true, and we had better learn it and learn it well, right. But what on earth do we do when we make it the medium of instruction? Education is the emancipation of mind from ignorance. Our Universities and the High schools that play second fiddle to them seek to achieve the emancipation by encumbering the mind with an extra load of ignorance.

Therefore the old Universities must orient themselves afresh and the new ones must

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LATE DR. GANAPATHI SASTRI. A GREAT SANSKRIT SCHOLAR.

By RAO RAHADUR K. V. RANGASWAMI IYENGAR,
Principal, Maharaja's Arts College, Trivandrum.

MAHAMAHOPADYAYA D. Taruval Ganapathi Sastri, Ph.D. (Tubingen), passed away at 9 P.M. on Saturday, the 3rd April 1926. He had retired four months ago after a distinguished service of over 47 years under the Travancore Durbar. The death occurred after a brief illness and was unexpected. It was hardly known even at Trivandrum that he had been seriously ill. The cremation took place in accordance with Sastric rules the next day. It was attended by numerous Pandits and scholars in Trivandrum.

The death of this eminent Pandit has created a void in the domain of Sanskrit scholarship which will not be easily filled. Few Indian scholars have attained the world-wide appreciation and recognition of their attainment which it had been possible for the Mahamahopadyaya to win, during the short space of a score of years preceding his death. For the last 11 years, the Travancore Durbar found itself obliged to continue him in service, in spite of the statutory rule making retirement compulsory at the age of 55 owing to the impossibility of finding a suitable successor. It was only a few weeks ago that the Mahamahopadyaya voluntarily relinquished his appointment unable to stand the strain of nearly half a century of arduous official and literary work.

The life of the Mahamahopadyaya reads almost like a romance in these days, when the scope for men of his type to rise to a position of usefulness and influence and widespread reputation, is so limited. But for the accident of his having served in an Indian State, he would probably not have had the opportunity which enabled him to win so much fame.

EARLY LIFE.

Ganapathi Sastri was born in the village of Taruval in the District of Tinnevely in October,

1860. He came of a poor Srotrin family. Very early in life he was deprived of his parents, the father first and the mother afterwards. However, being studious and attracted to Sanskrit studies in the short interval between his Upanayanam (investiture) and his 13th year he was able to get through the memorising of the entire Yajurveda. When he was 12 and reading at Trivandrum, his mother passed away. The sad news reached the boy some days after. The bereaved boy had to walk all the way from Trivandrum to his native village, a distance of 100 miles, to perform the obsequies of his mother. After they were over, he trudged back the entire distance with a younger brother of even tenderer age, whom he was to train and support—a truly heavy responsibility. But he proved equal to it. By his 16th year Ganapathi Sastri had become famous for his erudition in Nataka and Atankara, and in his 17th year, he composed a Sanskrit drama, *Madavi Vasantam* which won discriminating praise from two of the most learned princes of the Travancore Royal Family, viz., His Highness the Ayilyam Tirunal, who was then the Maharaja of Travancore and his remarkable brother and successor, His Highness the Visakham Tirunal. Ganapathi Sastri's advance in the Court of Travancore was now assured. He had the fortune to become an asrita of the late Mr. Kerala Varma, C.S.I., the Valakoil Tampuran of Travancore, who was himself a very great Sanskrit scholar and poet. Ganapathi Sastri continued to pursue his further studies till he became recognised as an all-round Pandita, proficient in every branch of Sanskrit learning, Sruta, Sabhya, Vyakarana and Tarka, Mimamsa, etc. His first appointment in the Travancore Service was given to him when he was hardly 18 years of age. He was then made Member of a Committee formed for improving and organising the great Sanskrit Library at the Trivandrum Palace. He was continued to enjoy the high favour of the two predecessors of His Highness the late Maharaja of Travancore. With the accession of this Prince to the masnad, Ganapathi Sastri's services were requisitioned more directly for the work of spreading Sanskrit learning. In 1889 he was accordingly made Professor of Sabhya in the Maharaja's Sanskrit College, at Trivandrum.

IN HIS HIGHNESS' SERVICE.

Within 10 years, he rose to be first the headmaster and subsequently the principal of the institution. For another 10 years, he remained at the head of the Sanskrit College. Under him it became one of the most efficient institutions of the kind in India. He was responsible for many improvements in the institution, and sought to unite Eastern and Western learning in the curricula of studies prescribed for his students. In 1908, Sir P. Rajagopalachariar, who was the Dewan of Travancore, recognised Ganapati Sastri's exceptional *faïre* for administration and for research, and the error of limiting his activities to a small educational institution. With the hearty concurrence of His Highness the late Maharaja of Travancore, a new Department for the Recovery and Publication of Ancient Sanskrit Manuscripts was formed and Ganapati Sastri was placed at its head with the designation of Curator. The Palace Library was at the same time placed under his supervision and he was given freedom to visit and examine all the public and private manuscript libraries throughout the West Coast and the Tinnevely District.

During the period of his 20 years' service in the Sanskrit College, Ganapati Sastri made a great reputation for himself as a fine scholar and teacher and as the author of many ingenious text-books in Sanskrit, which endeavoured to impart modern scientific knowledge to the Pandits who were being trained on traditional lines. But, his mature reputation was destined for his 17 years' headship of the Department of Sanskrit Publications.

During the short term of less than 2 decades the tireless activity of Ganapati Sastri was responsible, first for the training of a number of suitable assistants, who could co-operate with him and work under his directions, and secondly for the recovery of nearly 500 rare Sanskrit manuscript works hitherto unknown. During his term of service as Curator, Ganapati Sastri was able to publish 87 volumes in the Travancore Sanskrit Series, of which he was the founder and first

editor. He had also prepared for publication before his retirement a score of other books.

The wide range of Ganapati Sastri's interest and scholarship will be evident from the branches of Sanskrit literature covered by the publications for which he was responsible during these stirring years. Practically every branch of Sanskrit literature, Vyākaraṇa, Alankāra, Tarka, Mīmāṃsā, Dharmashastra, Jōtāishā, Sūtra Shastra, Tantrā, Kāla, Artha Shastra, Nāṭya Shastra, etc., are represented by the Sanskrit series. Every work in the series was edited with the same meticulous care and with all the critical apparatus now recognised as indispensable in well-edited classics. The scholarly introductions to every one of these 87 volumes came from the Sastri's own pen. Most scholars, who have read with admiration and delight the masterly English introduction prefixed to these volumes, would be surprised to know that his knowledge of English was very limited. Ganapati Sastri had received no training in western methods of research and had had no proficiency in English or in any other European language. But he had a quick ear for detecting mistakes in translation and could correct any errors in rendering his introductions into English.

Judged merely by the volume of his published work, Ganapati Sastri's achievement would be regarded as remarkable. But the quality of his editorial work was such as to win fame and unstinted praise from discriminating specialists in every branch of Sanskrit learning from all parts of the world.

DISCOVERY OF BHASA'S WORKS.

Ganapati Sastri's reputation was chiefly made by his famous claim to have recovered some of the lost plays of the dramatist Bhasa. The announcement of their discovery created a veritable sensation in the world of Sanskrit scholarship. Bhasa as a dramatist was known only by fragmentary quotations and by the laudatory references to him contained in a drama of Kalidasa, and in the *Harshacharita* of Bana and other classical books.

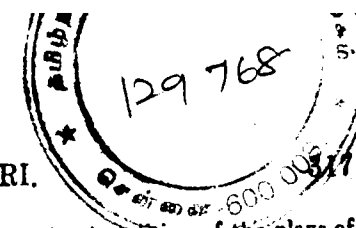
The dramas, which were discovered by Ganapati Sastri, gave no direct indication of the authorship. With matchless learning and skill, Ganapati Sastri marshalled the evidence for attributing these anonymous dramas to the famous Bhasa. His lengthy essay on the subject remains one of the masterpieces of critical scholarship in the whole field of the history of Sanskrit literature. After the first flush of enthusiasm following the discovery had had time to subside, a disposition was evinced, in certain quarters, to challenge the correctness of the attribution of these plays to Bhasa. Even now there are scholars, who continue to call into question the justice of this attribution of authorship. But in the realm of Sanskrit literature, practically every considerate scholar has felt the force of Ganapati Sastri's arguments and agreed with his findings. The sceptics have obtained some measure of reflected glory by being regarded as leaders of forlorn hopes, and the exponents of daring heresies, which called forth periodically (as they were expressed), weighty replies from the late Mahamahopadhyaya, and his Western and Eastern admirers or disciples. Another work which is likely to be remembered in connection with Ganapati Sastri's name quite as well as his publication of the lost plays of Bhasa is a superb edition of the *Artha-sastra* of Kautilya. This memorable treatise was first published 20 years ago by Dr. Shama Sastri (in the Mysore Oriental Series), from a solitary manuscript. It soon became the subject of innumerable critical studies. Everyone had felt the need for a definitive edition, free from the usual defects and difficulties which abounded in the Mysore Edition. Ganapati Sastri had the good fortune to discover other manuscripts of this famous work, as well as of its commentaries, from which he was enabled to prepare and publish an edition of the *Artha-sastra*, which will probably remain for a long time to come, the standard edition of the classic. The work was undertaken by him, at a time when he was able to bring to it ripe experience and vast learning. He made the editing

of the *Artha-sastra*, like the editing of the plays of Bhasa, a veritable labour of love; and he provided both with brilliant introductions in Sanskrit and English, and with commentaries composed by himself. Ganapati Sastri's matchless learning is perpetuated in those commentaries, and he would probably be better remembered by these commentaries in the generations to come than by his other achievements.

A mere quantitative estimate of the work of Ganapati Sastri will, as already pointed out, fail to give an adequate idea of his truly stupendous achievement. Such an estimate would merely state that the texts which he personally edited extended to over 21,000 pages, that his researches had brought to light 43 unknown writers and their works, that he had recovered over 500 lost writings, and that his introductions alone covered more than 400 printed pages. It is the *quality* of his work, rather than his enormous output, which has won for him the just admiration of the learned world.

HIS REPUTATION.

Dr. Ganapati Sastri's post-bag has been a heavy one. Every mail has brought him many letters from Sanskrit scholars from all parts of the globe. For the last 15 years his modest residence at Trivandrum became a veritable place of pilgrimage. No Orientalist of repute visited India without including Trivandrum, in his itinerary, so as to have the privilege of paying homage to the great Sastri. Honours came to our Mahamahopadhyaya unasked and without stint. Of the magnitude of some of them he had himself not always an adequate perception. It was in the fitness of things that in 1918, he should receive the title of Mahamahopadhyaya from the Government of India. In the same year, he was invited to preside over the deliberations of the All-India Sanskrit Conference at Allahabad. In 1920, the very rare honour of an Honorary Membership of the Royal Asiatic Society of London, won so far by only 3 or 4 Indians, was conferred on him. In the same



year when a joint session of the Asiatic Societies in Europe and America was held at Paris, an address was spontaneously voted to the Mahamahopadhyaya by the distinguished Orientalists present, expressing their grateful appreciation of his eminent services to the cause of Sanskrit. It was then agreed that it should be presented to him by one of them. This was done some months later, when Dr. F. W. Thomas, C.I.E., the Librarian of the India Office, visited Travancore and submitted the address to the Mahamahopadhyaya in person. It was inevitable that the Mahamahopadhyaya should be one of the galaxy of Indian scholars invited to the Senate House by the University of Madras on the occasion of the visit of His Royal Highness the Prince of Wales, and that he was one of the recipients of the *Khillats* presented by His Royal Highness on that occasion to distinguished *Vidvans*. Membership of Sanskrit Boards of Examiners and of Studies in this and other Indian Universities would by itself be small distinctions compared with the honours that the Mahamahopadhyaya had received. In 1924, the University of Tübingen, well-known for its zealous pursuit of Sanskrit, honoured itself by conferring the Honorary Doctorate of Philosophy on the Mahamahopadhyaya, "in recognition of his meritorious services in the cause of Sanskrit learning and in the recovery and publication of Buasa's plays."

The world of Orientalists is certainly poorer to-day by the passing away of this distinguished scholar. No Indian, since the days of R. Jendralal Mitra, had enjoyed in Europe and America as great a reputation. Not even R. Jendralal Mitra received such discriminating and universal recognition of his wide and accurate *paṇḍitya*. The prophet is seldom honoured in his own age or land. In Ganapathi Sastri's case this was happily not so, though it must be confessed that he was far better appreciated in Europe and America than he was in India as a whole or in the State where he served for so many years with unswerving devotion and unflinching loyalty.

An ancient Sanskrit saying has it, that a king is honoured only in his country while a man of learning is honoured everywhere. The truth of this was realised in the life of the obscure *Srotriya* of Paruvai, who, without the advantages of wealth, family influence and powerful patronage, was enabled by his own learning and efforts to attain to an eminence and fame, which kings and statesmen have often craved for and seldom attained.—*A Reprint.*

LESSONS IN ELEMENTARY ENGLISH PHONETICS—COMPARATIVELY TREATED.

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(Continued from p. 192—March 1926.)

V.

In this and the succeeding articles the symbol *v* stands for the sound *ṡ* and *z* for the sound in "azure" though the I. P. A. symbols are slightly different. The other symbols are all I. P. A. symbols.

IN English there are only diphthongs and a few triphthongal combinations. Malayalam colloquial possesses not only triphthongal combinations like *சாது* [cʃa:ʈu] etc., but has tetraphthongal combinations too like *புளையா* [puaio:] which in reality are composed of two syllables. In the literary language, however, these sounds are so distinctly and separately uttered that they become almost four syllables.

Diphthongs are divided into two main classes: *Falling Diphthongs* and *Rising Diphthongs*. In the former the first element forms the stressed portion of the syllable and there is a gradual lowering of stress in connection with the second element. In the latter the main stress is on the second element.

Falling diphthongs are more prominent in English, while in Malayalam there are both falling and rising diphthongs. The diphthong [ai] for instance, in the English words *by*, *eye*, etc., if analysed would reveal that the stress falls on the first element so greatly that the sound of [i] is never reached in actual practice. In order that the sound [a] may pass to [i], it has to travel through [æ]—[ɛ]—[e]—[i]—[i]. The stress on [a] is so great that, in actual practice, the [i] sound alone is reached when the diphthong is sounded. In weak unstressed words [ai] becomes not only [ai] but even [de] as in "my eyes." Similarly the diphthong [au] = [au] in stressed syllables,

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bles, and [əy] in weak unstressed syllables. Similarly [di] = [di].

Of falling diphthongs, very many examples could not be had in English. In Malayalam there are both rising and falling diphthongs.

Rising.

[puo:]

[kəɔ]

Falling.

[yaljə] (colloquial.)

General Remarks regarding Vowels.

A. Having studied the nature of English vowels, it would be well for us at this stage to mark off the main differences between the articulations of the English and South Indian vowel-systems:

1. Neutral vowels are more frequent in English than in Malayalam and more frequent in Malayalam than in Tamil.

2. The strong initial stress in English has led to an unusually large number of elisions and contractions in English. In Tamil and Malayalam, only the colloquial, especially of the masses, favours elisions which in any case are not so large as in English. Haplophrastic phrases and words are common in Malayalam colloquial, as the following passage in the North Malabar dialect shows: [endoru balioru bimmiḍḍamaṇu! on eḍḍakkja puzi. uṇu yæn kaṇḍo:] which in literary language will be [ent(d)oru valia ka ʃṭinaṇḍ! aḍḍa evi-(d)ekkja po:kunnuyṇṇḍ yæn kaṇḍ(d)uyo:]

3. Another difference that I have observed is the greater ease felt by a South Indian in the utterance of his vernacular sounds. This is probably the result of his habitual capacity to move the muscles of the vocal organs far more freely than the Englishman. No dogmatic assertions can be made in regard to this matter which, however, is well worth investigation.

B. *Nasalisation of Vowels:* In the case of ordinary vowels, the sound travels out

through the oral cavity, but if at the same time the sound is partially allowed to pass through the nasal cavity past the *velum palati*, the sound acquires a nasal twang. This nasal twang should be clearly distinguished from purely nasal sounds like [m], [n], [ŋ], [ɳ], [ɳ] in the production of which the passage of sound through the oral cavity is stopped at some stage, and the sound is directed back through the nasal cavity.

Nasals are not common in English. They are very frequent in French as in the word 'bon' [bɔ̃]. In colloquial Tamil and Malayalam, nasalised vowel sounds are often heard, e.g. Tamil *வண் > அண்* or *அண்* [aũ]; *வந்தான் > வந்தான்* [vaũdũ]. French words like 'envelope,' 'entourage' borrowed into English, sometimes retain their nasalised pronunciation.

Talking of nasalisation, we might say that nasal sounds are more conspicuous in Malayalam than in Tamil, because of the presence in the former of sounds like [ɳ] = *ஞ* and [ɳ] = *ண்*. This is what leads many Tamilians to observe [tamiṇu muḥkaḥ paṇḍiya: malja:ḍama. gum] = தமிழ்முகத்தைப் பண்டியா மலையாளமும்.

In this connection we have to note that in literary Malayalam, [ɳɳ] is derived out of old Tamil [ɳg], as in *மாந்தாய் > Mal. [ma:ɳɳɳ]*.

Similarly [ɳɳ] comes from old Tamil [ɳɳ] e.g., Tamil [paɳɳɳ] > Mal. [paɳɳɳ].

The sneer, however, is hardly justified by real facts.

C. *Common mistakes in the South Indian articulation of English vowels:* (1) [i] is lengthened and made too open

(2) [i] and [i] are not sufficiently well distinguished.

(3) The vowel vanish after [e] in [neim], after [ɔ] in [nout] not noted.

(4) [ɛ] is very often confused with [e].

(5) [æ] is wrongly replaced often by [a] or [ɑ].

(6) [ɔ] often gives place wrongly to [A].

(7) [ɔ] is wrongly uttered.

(8) Diphthongs are not often uttered as single syllables.

(9) Malayalam [a] which is neither so back nor so open a vowel as [ɑ] is sometimes allowed to wrongly replace [ɔ].

CONSONANTS.

We have already seen that the distinction between the consonant and the vowel consists in the fact that in the production of the former, the air-current is impeded to such an extent as to cause stop or perceptible friction, while in the production of the latter no such thing happens. There are certain sounds which come betwixt and between. For instance, certain varieties of [w], [r] and [j] where the friction is not great can be classed as semi vowels in English. The glide [ɛ] in the Mal. word *அயன்* (= ஆ + ஆன்) and the glide [ɔ] in Malayalam *பழயொரு* 'பழய + ஒரு' [pɑ:ɔjɔɾu] have a consonantal element in them and so they form an intermediate class between vowels and consonants.

VOICED AND BREATHED CONSONANTS.

The distinction between *breath* and *voice* has already been referred to. The vocal chords vibrate during the articulation of voiced sounds while they remain stretched apart and open in the production of breathed sounds. As we shall see later on in connection with the class of consonants called the plosives, there are various degrees of voicing from the one extreme of complete non-voicing to that of complete voicing.

Voicing is of greater frequency in Tamil than in Malayalam. For examples:

Tamil.	Malayalam.
வடக்கு [vɒdakkw]	[vɒtɒkkɔ]
சந்தை [cʃandɔi]	[cʃanta]
பங்கம் [pɒŋgɒfɔm]	[pɒŋkɒfɔm]
பம்பு [pɑ:mbw]	[pɑ:mpɔ]*
கொண்டு [kɒɳɖu]	[kɒɳɖɔ] or [kɒɳɖɔ]*
சென்று [cʃendru]	cf [ente]
அஞ்சு [Aɳʃɔ]	[Aɳcʃɔ]

The colloquial of the masses in Tamil and in Malayalam favours voicing in all the above cases, but in the colloquial of the higher classes or the superior castes amongst the Malayalis, there is no voicing of the surds in any of the above cases.

The following table gives a list of English consonants classified according to the place of articulation, the manner of articulation and the presence or absence of voicing.

Fricatives are those sounds which can be prolonged to any extent. The production of these sounds is the result of the expiration of a current of air through a narrow passage. These are also known as *spirant* or *continuant* sounds.

Affricates are an allied variety, being combinations of initial plosive elements and succeeding fricative or continuant elements. The English alveolar affricates [tʃ] and [dʒ] are composed of the initial plosive element in [t] or [d] produced with the tip of the tongue, followed by the spirant or fricative

* In the combinations *கூட்டு*, *கூடி*, Malayalam colloquial follows the Tamil, and probably the old Dravidian, practice of voicing the breathed surds as a result of the influence of neighbouring sonants; literary Malayalam tolerates [kʉt] or [kʉɖ] and [mp] or [mb].

TABLE OF ENGLISH AND PECULIAR SOUTH INDIAN (TAMIL AND MALAYALAM) CONSONANTS.

	Lip and		Tip of Tongue and Teeth.	Gums and			Tongue and		Retroflex.	Glottal.	REMARKS.
	Teeth.	Lip.		Front Blade.	Tip.	After Blade.	Front Palate.	Back Palate.			
Fricatives ...	f, v.	F, v.	θ, ð.	s, z.	r.	ʃ, ʒ.	j		[ʃ], [ʒ]	h	
Affricates ..											tʃ and dʒ are English affricates; [cʃ] and [jʒ] are Indian.
Plosives ...		p, b.			t, d			k, g	[t], [d]		[t] and [d] are formed with tip of tongue and teeth.
Nasals ...				[ɳ]	n	[ɳ]		ŋ	[ɳ]		[ɳ] is peculiarly Malayalam and is not found in Tamil.
Laterals ...					l				[l]		
Vibration of the tip of the Tongue.					r				[ɽ]		

Peculiar Tamil and Malayalam consonants in brackets.

glide [ɛ] or [ɔ]. Tamil and Malayalam * and ʒ, are different from English [tʃ] and [dʒ] in the following respects:—

1. In English, the tip of the tongue alone is employed initially while in the Indian sound the front blade is spread on the teeth-ridge—

2. The plosive element is [t] in English while it is [c] in the Indian sound.

3. No lip-rounding exists in Malayalam as in English.

Plosives, otherwise called stops, are those sounds which result on the sudden separation of a stoppage of the current of expiration in

one of the super-glottal passages. Two distinct elements can be noted in plosives:— (1) the forming of the stoppage, (2) the sudden separation. The separation of the stoppage may, in the pronunciation of a word, be immediately followed by a vowel or consonant sound, or sometimes by a slight *aspirate-like* sound which may be heard as in English, immediately after the separation.

Nasal sounds are formed by the sounds passing through the nasal cavity instead of through the oral cavity.

Laterals are those sounds which pass through the lateral sides of the tongue when

the tip of the tongue forms two lateral passages with the gums.

A detailed discussion of these sounds is given below.

In the articulation of a consonant, special care should be taken to distinguish the consonantal element as separate from any vowel that may accompany it. It is usually the habit with our little boys, when they begin the study of the letters of the Veanacular or Sanskrit alphabet to sound them as [kw], [khw], [gw], etc., with a small vowel closely accompanying the consonants. It is also a common opinion amongst some Malayali grammarians that consonants could not possibly be sounded without the support of vowels. The reason for this erroneous view is not far to seek. In the case of an important class of consonants, called the plosives, the production of the sounds always involves the enunciation of a short out-growing breath which is oftentimes mistaken for a vowel itself. This peculiarity of the plosives has probably led to the above-said erroneous view regarding the nature of consonants.

In a word like "possible" the consonants and the vowels should be clearly distinguished: [p] + [ɔ] + [s] + [i] + [b] + [l] (syllabic). Only a proper understanding of consonants will lead to the recognition of this fact.

The main organs taking part in the production of consonants are the lips, the tongue (=the tip, the middle tongue and the back tongue), the roof of the mouth, the soft palate, and vocal chords. The place of articulation refers to the position of the vocal organs during the production of the sound.

The lips alone are responsible for the production of [w], [p], [b], [m] in English and [v] and F] in Tamil and Malayalam.

The lips and the teeth give rise to [f], [v].

The tongue, for our purposes, may be divided into three portions; the tip, the middle tongue and the back tongue.

The tip of the tongue and the teeth produce [θ] and [ð].

The front blade of the tongue when spread on the teeth-ridge produces Malayalam and Tamil [s] and [z].

The tip of the tongue when in contact with the front portion of the gum gives rise to [t], [d], [r], [ɹ], [ɻ].

The tip of the tongue when in contact with the after-gum produces [ʃ], [ʒ].

The middle blade of the tongue when in contact with the front palate results in [j].

When the back blade of the tongue comes in contact with the back palate, the sounds [k], [g] [ŋ] are produced.

The glottis produces [h].

The tip of the tongue in contact with the apex of the roof of the mouth produces the retroflex [ʈ], [ʣ] [ɖ], [ɹ] in Malayalam.

It will be seen from the table that [t], [d], [n], [l], [r] have all the same place of articulation. This position of the tongue and foregum is definite and uniform English. In French or in German, the sounds [t], [d], [n], etc., though very much allied to the corresponding English sounds, have a slightly different tongue position, since the tip of the tongue touches the teeth-ridge. This particular position is definite and uniform, so far as the French language is concerned.

The cerebral tongue-position for Malayalam usual in the production of [t], [d], etc., makes the Malayali mistake the English sounds and cerebralise them as in pronouncing "bull" or "money" or "sorry" which Malayalis wrongly utter as [bul], [maɳi], [soɾi].

FRICATIVES: Lip and Teeth.

[f] and [v]:—[f] as in *father, rough, effective* and [v] as in *very, vine, give*, etc.

(a) The lower lip rises and forms a kind of hole-like passage with the upper row of teeth through which the current of expiration is forced out.

(b) The Malayalam sound *va* has two values. Commonly a bilabial [v] with the two lips more or less protruded, is brought out in actual speech; but I have met many people bring out a labio-dental sound not exactly equivalent to the Eng. [v], but a sound not dissimilar to it in character. The attempt to clearly bring out a strong *va* results in the lower lip being raised to a position immediately below the upper row of teeth with which a split-like passage is formed, through which the current of expiration passes. This Mal. [v], rarely so found amongst the masses differs from English [v] in the following respects:—

1. The upper surface of the lower lip does not approach the upper row of teeth DIRECTLY. It is the inner surface of the lip that makes the approach. In this connection, we have to remember two facts: (a) the upper row of teeth are more forward in position than the lower row; (b) the Englishman's lips are thinner than the Indian's—The forward position of the upper row of teeth is responsible for the fact that when the lower lip moves upwards, without being in any way protruded, it has necessarily to come into close nearness with the upper row of teeth. So unless the Malayali protrudes his lips in the production of this sound, his lower lip is sure to form a passage with the upper row of teeth. The protrusion of the lips is not always clearly made and thus [v] alone is brought out.

The orthodox classification puts the sound under the category of bilabials but [v] also is sometimes heard.

2. The passage formed in the case of the English sound is hole-like, while the passage in the case of the Malayalam [v] is not circular.

The English sound [v] should be distinctly uttered with the upper surface of the lower lip closely forming a hole-like passage with the upper row of teeth.

(c) Confusion should not be made between [f] and [v]. Accent and stress protect the breathed character of the sound.

'Of' in unaccented positions is [ɒv] while 'off' is [c: f].

(d) Compare

fine	[fain]	[vain]	vine
shelf	[ʃelf]	[ʃelv]	shelve

LIP and LIP:

(a) [w] voiced usually in English, The lips come into close nearness with each other and a hole-like passage is formed through which the current of expiration rushes. The sound occurs in *way, always*, etc. [v] and [w] are identified with [v] by many Indian speakers. In vernacular transliterations the same symbol *va* stands for all these sounds. There is no [w] sound in *how* [hau] or [kau]. [v] the nature of which has been explained above, is the common bilabial of Malayalam and other Indian languages.

(b) [v] is replaced by [ɖ] in the North Malabar colloquial, e.g., *vaḷaḷa* becomes [baḍaḍaḷa].

TONGUE and TEETH.

(a) [θ] and [ð]: The tip of the tongue comes closely against the upper teeth and forms a narrow split-like passage. The con-

tinuant or fricative nature of the sound is often ignored by Indian speakers who wrongly identify it with Indian [t] which is a plosive.

(b) In English, the spelling *th* stands for [θ] or [ð], e.g. thin [θin] [ðen] then thigh [θai] [ðai] thy pithy [piθi] [hiðð] hither.

The discussion of the reasons for these apparent anomalies lies within the province of the history of the development of the language, but a few guiding principles in regard to voicing generally, may be stated here.

1. When a word containing a medial or final voiced fricative is used both as a noun and as a verb with the same or very nearly the same spelling, the verb has the voiced variety of the fricative while the noun possesses the breathed variety, e.g., c.f. [ʃi.θ] and [ʃi:ð]; [breθ] and [bri:ð].

2. Breathed fricatives in recently imported words retain their breathed character.

3. Proclitic, enclitic and other unaccented words like pronouns, etc. [ðai], [ðəm] have voiced fricatives.

4. Fricatives in inflectional endings when in contact with voiced sounds are always voiced, e.g. [bægz], [bendz], etc.

5. A particularly strong accent on the syllable containing the fricative, protects the breathed character usually.

TIP of the TONGUE and FORE-GUM.

(a) [s] and [z]: The passage formed for the current of expiration is wider for the production of [s] and [z] than for [θ] and [F].

(b) [s] is very frequent in English. This is what makes our peasants exclaim with a leer *தரை காசு-படுவென்று பேசுகிறான்*. [durai ka zas pu : zwnru pe : ʃwgiɾa'n].

(c) Compare the following sets of sounds:—

Breathed.		Voiced.	
House	[haus]	[rou z]	rose
so	[sou]	[zi:l]	zeal
stone	[stoʊn]	[wəz]	was
wince	[wɪns]	[wɪnz]	wins
ice	[ais]	[aiz]	eyes
fierce	[fiəs]	[fiəz]	fears
hiss	[his]	[hiz]	his
rice	[rais]	[raiz]	raise
loose	[lu:s]	[lu:wz]	lose

(d) Both [s] and [z] occur in Tamil and Malayalam. Intervocalic [s] is voiced partially or completely in Tamil and certain colloquial dialects of Malayalam. Literary Malayalam resists the voicing of intervocalic [s], as it does of all intervocalic breathed sounds.

TONGUE and AFTER-GUM.

(a) [ʃ] and [ʒ]: The passage formed for the production of these sounds is more like a hole than like a split.

(b) The English sound [ʃ] should be clearly distinguished from the Indian retroflex sound [ʃ̠] = *சு*, though the manner of articulation is the same for both. The English sound [ʃ] is also different from the Malayalam sound in *சுஷன்*. [ʃ] sometimes becomes [ʒ] in Tamil combinations like *சுஷன்* though Malayalam keeps the breathed character pure: Tamil [kasɳəm] Malayalam [kaʃɳəm].

(c) Compare the following sets of sounds:—

Breathed.	Voiced.
[preʃð]	[plezð]
[miʃðn]	[yizðn]
[æʃuð]	[æzð]

[j]: This English sound occurs in *yes, yard*, etc. Close observation will reveal the stronger consonantal character of [j] in *yes* than in [ja:d]. The sound is common in Malayalam

and in Tamil; but in the colloquial of these languages the tendency to split up the sound into different vowel sounds is quite common.

GLOTTAL SOUND.

[h]: This is the last of the fricative series.

(a) When the vocal chords are brought near each other, but not close enough to be set in vibration, the current of expiration produces this fricative which is usually breathed. It is difficult to voice the sound, but partial voice is seen in "behind" while in "heard" "heart," etc., there is no voicing. The difficulty involved in the production of this sound makes it very unstable in the colloquial, and the habit of dropping the "h's" [eitʃiz] is a common characteristic of the London "Cockney" and other dialects. The instability of [h] is also seen in the colloquial forms of Malayalam words

வாழியா	— [vAhija]	> colloquial	[vAjja]
மாண்	— [makðn]	> colloquial	[mahðn].
	[hiraŋjan]	> colloquial	[irɳjɳn].

To drop the "h's" in English is considered to be a sign of low breeding; this feeling has led many people to introduce an unwanted [h] in inappropriate places. Here is an anecdote: "A barber while operating on a gentleman, expresses his opinion that after all, the cholera was in the *hair*. "Then" observes the customer, "you ought to be very careful what brushes you use!" "Oh! Sir!" replies the barber laughing, "I didn't mean the *air* of the *ed*, but the *hair* of the hatmosphere."

Even the literary language shows instances of the dropping of 'h' in various words:

it	<	hit (old English)
I've'd	<	I have had
I saw 'im	<	I saw him

[h] is absent in words like *Graham* [greiðm], *nihilist* [niilist], *vehicle* [vi:kəl], *honour* [ɔnð], *hour* [auð], *forehead* [fɔrid], *Chatham* [tʃætəm], perhaps [pðræps], etc.

(b) The combination *wh* is [w] in South England while it is [hw] in the Northern Counties. Even in the South, *wh*

is [hw] in strongly accented words and [w] in weakly stressed words.

Again,

"Why are you here?" is [hwaɪ ðr ju hið?] and "Why! I can't say" is [wai! ai ka-nt sei].

(c) The habit of aspirating sounds is common in Malabar, especially amongst the Sanskrit knowing folk. The aspirate never existed at all in ancient Tamil, and the introduction of Sanskrit culture in the South of India is responsible for the sound [h] in Malayalam.

AFFRICATES.

Affricates, as explained above, form a class by themselves. The English affricates are [tʃ] and [dʒ]. The English sounds are different from the Indian sounds [cʃ] and [ʒ]. The theory of the affricates is a recent one, the orthodox classification regards the Indian sounds *சு*, *ஜ* as stops, but they are really affricates. It should be remembered that there is no explosion of the first plosive element, but before the actual explosion the spirant glide as follows.

Tamil [cʃ] easily becomes [ʃ].

திரிசுந்தர் > [tiɾiʃu.ɾ]

[cʃ], [tʃ], [ʃ] and [s] are all interchanged in Tamil.

Compare the following sets of sounds in English:—

chin	[tʃin]	gin	[dʒin]
chest	[tʃest]	jest	[dʒest]

etch	[etʃ]	edge	[edʒ]
larch	[la:tʃ]	large	[la:dʒ]
riches	[ritʃiz]	ridges	[ridʒiz]

tu = [tj] has given rise to [tʃ] as in nature [neitʃə]; venture [ventʃə].

PLOSIVES.

These are a very important class of consonants so called, because of their exploding nature. The two elements of a plosive, already explained must be clearly distinguished. There are six plosive sounds in English while in Malayalam there are nine plosive sounds [p], [b], [t], [d], [ʈ], [ɖ], [k], [g].

(a) The voiced plosives are different from the voiceless plosives in the following respects:—

1. Several muscles in and about the mouth are subjected to a great amount of strain in the production of the voiceless plosives or surds as they are called. The strain even sometimes prevents the vocal chords from vibrating for a moment.

In the production of the voiced sounds, the strain is not so great. Vocal chords could freely vibrate while the sounds are produced.

It will be seen on close observation that the lighter the explosion, the easier is the strain and the greater is the voicing.

In fact there are various degrees of voicing possible between the two extremes:

1. Full explosion with an out-growing breath immediately following—maximum strain exists—vocal chords do not vibrate at all, e.g., [tʰeibl] [kætʰ] etc. The Malayalam sound like [pa:ʈʈə], etc., belongs to this class with however, NO aspirate.

2. Same as the above but weakly aspirated as in pen [pen], [stop], etc.

3. No aspirate at all as in the initial sound of a Malayalam word like [pa:pəṁ], etc.

4. Muscular strain considerably less. No voicing at all—e.g., [lɔbstə], [bægstə] etc. and in Malayalam colloquial words like [uṇḍə], [vaḍakkə], [go:ba:lən], etc. Intervocalic surds in Malayalam are often pronounced in this manner by certain Malayalis.

5. Muscular strain less strong still; voicing begins even before the explosion as in [bvt], etc.

6. Fully voiced sonants as in [bɔdi] [hændi].

If we utter a group like [apa] and one like [aba], we will see that for all the positions abovementioned except No. 6 there exists a gap in the vibration of the vocal chords from [a] to [a], however short this gap may be.

(b) In this connection a few words regarding Tamil and Malayalam plosives may not be out of place here. In Tamil, both the breathed and the voiced varieties exist, though the symbol is the same. Initial surds or breathed plosives remain surds in Tamil; double surds intervocally also remain surds. Intervocalic surds easily become sonants in Tamil except in the pronunciation of Sanskrit words by Sanskrit-knowing people. In Malayalam, we have both the voiced and the breathed varieties of the simple and the aspirated plosives. Initial surds and intervocalic doubled surds remain as surds; intervocalic surds resist voicing in the literary dialect and in the colloquial language of the educated classes, while in the common colloquial of the masses, there are different degrees of voicing for this sound.

In combinations of voiced nasals + surds like [ṇt], [mp], [ṇk], Tamil voices the surds and

EDUCATION OF WOMEN.

the above combinations in Tamil become [ṇḍ] [mb], [ṇg], etc., while Malayalam shows no change at all in certain cases and different degrees of change in other cases. Voicing sets in Malayalam in (a) rapid reading, (b) colloquial dialects, (c) unaccented and unintoned syllables, (d) very familiar words of common every day use like *வண்ணம்* [vaṇḍi].

There are two opposing tendencies working in the Malayalam language: (a) the old Tamil tendency to voice breathed sounds freely, e.g., old Tamil [ṇḍ] and [ṇg] > Mal. [ṇṇ] and [ṇṇ]; Lit. Mal, [ṇk] > coll. [ṇṇ], (b) the influence of Sanskrit which stands in the way of free voicing.

LIP and LIP.

[p] and [b]: Eng. [p] has a distinct aspirate sound immediately following it; Malayalam and Tamil breathed plosives have no such aspirates at all. The tendency to turn intervocalic surds into sonants in the Vernaculars colours the South Indian pronunciation of certain words like "impossible," "improvement," "congratulate" which are wrongly converted into [imbəzibə], [imbru:vment], [kəṇgraduleit], etc.

There is a subtle distinction between the sounds of [p] in "apart," "pen," "lobster," see above for the explanation.

Just Ready.

KALIDASA

Being a critical appreciation of his works
IN TAMIL

By K. S. RAMASWAMI SASTRIAR, B.A., B.L.
Sub Judge, Tanjore.

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4, Mount Road, Madras.

Under the auspices of the Vasant Vyakhyan Mala, Poona, Mrs. S. Gadgil gave a lecture on the present system of Women's Education. She criticised the system which gave the same kind of education to grown-up boys and girls and said it was as foolish to expect mangoes from a guava tree as good mothers and housewives from the present system of education which is imparted to women. No one will dispute for a moment that it is foolish to expect mangoes from a guava tree but at the same time none will be so silly as to say that guavas should not be expected from a guava tree, whose business it is to produce that fruit. And what are the mangoes according to Mrs. Gadgil? Good mothers and good housewives. It is in our opinion only half true to say that the be-all and end-all of a woman's life is to be a good house-wife and a good mother. That is the old, traditional idea about woman's destiny. But even supposing that is the only object with which education should be imparted to women, which of the subjects taught to women at present time should be eliminated from the curriculum? Is History of no use that women could do without it? Is the knowledge of Geography, Languages, Science and the other subjects taught of no avail to women? If it is useless for women to know any or all of these subjects, it is equally so in the case of men. Mrs. Gadgil has no constructive proposal to make on the question of education of women. She merely asserts that it is of the wrong kind but what the right kind is she does not say. Perhaps the Three R's and the Spinning Wheel would make good house-wives and good mothers of our women. The charge levelled against the present system of education that it made women dislike household work is not wholly true. For every educated woman who does not like household work, there are at least a thousand uneducated ones who do not love it. There is nothing seriously wrong with the educational system of the present day. What is wrong is the idea conceived by some half-educated and narrow-minded women about the duties and ideals of their own sex—(The *Subodh Patrika*, Bombay).—From *The Indian Social Reformer*: May 29, 1926.

EDUCATING THE LONDON POOR

By PROF. M. K. GIDVANI, M.A.

Elementary education in London was originally supplied by religious bodies. The first annual Parliamentary grant to these was made in 1833. Under the Education Act of 1870, School Boards sprang up in the country and these started what came to be known as the Board Schools. These schools were maintained out of the rates while the religious schools were maintained out of voluntary contributions. The following Acts provided further for the educational needs of London. The Educational Act of 1902 made the Local Education authority responsible for all kinds of education. The Provision of Meals Act (1906) enabled Local Education authorities to provide meals for necessitous children. The Act of 1907 provided for medical inspection and treatment. The Children Act of 1908 dealt with neglected children and children in sordid surroundings, and the Mental Deficiency Act, 1923, dealt with mentally defective children. The most important measure in recent years is the Education Act of 1918, known as the Fisher Act. This provides for Continuation Schools and education up to the age of 18.

THE EDUCATIONAL AUTHORITY.

The London County Council, the L.C.C. is the Local Education authority for London. Practically the whole of the Elementary Education in London is under the Council's control, and in the various branches of higher education the Council is closely associated with the London University and the governing bodies of the Secondary Schools and Polytechnics. It has, besides, got its own Secondary schools and Training colleges.

The Council's educational expenditure is about £7,000,000 for Elementary and £1,500,000 for Higher education. The Council receives 40 per cent. from Government grants and will now receive 50 per cent.

The age of compulsory attendance at an Elementary school is from 5 to 14, and attendance is enforced by the aid of personal visits to the homes of the children by 350 Attendance Officers who work in co-operation with the Head Teachers. The number of pupils in each class was originally 60 but now it has been reduced to 40.

In addition to the usual subjects, domestic economy, handicraft, nature-study, physical exercises, organized games, and swimming are taught. Increased attention is now being given to museums and school journeys. There is a tendency to diminish the number of examinations, and to give more freedom to teachers in framing their curricula.

CARE OF CHILDREN.

The L.C.C. looks after the physical and social welfare of the pupils also. There are Care Committees which are concerned with—

1. The selection of children considered to be in need of free meals, and the care of the families.
2. The care of children in need of medical treatment.
3. The care of neglected children.
4. The care of children leaving school, and advice as to suitable employment.

The Care Committees provide free meals to children who are unable to profit by their education owing to want of food.

MEDICAL TREATMENT.

The children are treated in the London hospitals, but the Council too has its treatment

centres in different parts of the city. A charge of one shilling is made per child which is reduced to a penny for those who cannot pay.

For Recreation there are Evening Play centres and Happy Evenings Associations.

CENTRAL SCHOOLS.

These are special schools with a Commercial and Industrial bias. Pupils with special aptitude are selected after the age of 11 and they take a four-years' course with a special curriculum. This is framed with a view to enabling pupils to pass directly into commercial and industrial positions.

OPEN-AIR SCHOOLS AND PLAYGROUND CLASSES.

There are two Open-Air Schools for children of delicate constitution. I visited one of these and found that the children had derived immense benefit. They were given three meals free every day and their physical condition was kept under careful observation. I found them at work in the classes and in the gardens and the Head Mistress told me that they were very happy at school.

Besides these schools, there are playground classes in ordinary schools, and these have proved extremely satisfactory.

For children definitely suffering from tuberculosis, there are special schools.

THE TEACHING STAFF.

There are about 18,000 permanent certificated teachers, of whom one-third are men. Almost all of these are trained. The salaries are: Head Teachers—£200 to £550, Head Mistresses, £150 to £410. Assistant Masters, Certificated £120 to £300, Assistant Mistresses Certificated £108 to £225.

A teacher usually spends 17 years in the service before being promoted to a head teachership.

SUPERANNUATION OF TEACHERS.

The Superannuation Act of 1918 provides the following benefits:—

1. Benefits at retirement—(a) Lump sum of one-thirtieth of the last 5 years' average salary for each year of service up to 45 years.
- (b) Pensions of one-eightieth of the last 5 years' average salary for each year of service up to 40 years.

BOOKS AND APPARATUS.

Books and apparatus are supplied from the Central Stores. There is a scheme of circulating reading books. The Optical lantern is also used and the Council has a splendid collection of 3,500 lantern slides. I had occasion to borrow slides on India for a lesson to boys at the High School where I was teaching.

The Council also maintains an up-to-date library of books dealing with education. There are standard works on psychology, educational method, handwork, history, geography, literature and art, music, economics. All teachers in the Council's service are entitled to borrow books.

SCHOOLS FOR DEFECTIVE CHILDREN.

There are two types of these: (a) Those for the Physically defective and (b) those for Mentally defective, known as the D.P. and M.D. schools. A special Act of Parliament requires a school authority to maintain free schools for the Blind and the Deaf up to the age of 16 and the Council provides for these in its own schools and in special cases sends them to Missionary institutions. They are encouraged to go to Elementary schools and mix with the normal children.

THE MENTALLY DEFECTIVE.

I attended the P. and M. D. schools in company with Mr. Hill, Special Inspector of these schools. Mr. Hill was very kind and he always introduced me as "the Director of Education in India." I was impressed with the care the English people took of each and every child and did not allow physical or other handicaps to stand in the way of a

child's receiving education. Mr. Hill told me an interesting story of this which I cannot help repeating. A girl of the age of ten was suffering from Hysteria and other mental disorders and the poor parents had given her up as incapable of receiving education. When approached by the authorities they said so. The Council Officer, however, was not satisfied and a special medical officer was asked to examine the girl and submit a report. This officer thought the girl was suffering from Hysteria but that she was not incapable of receiving education. This made it obligatory on the Council to take charge of the girl and since the parents were poor all the expenses of treatment, maintenance were borne by the Council. Mr. Hill took the girl to a Missionary Nursing Home in Wales where she could be properly looked after and also educated. This instance reminds me forcibly how the English nation cares for each little child, the lowliest and the lost.—*The Mysore Economic Journal*: April 1926.

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A REJOINDER.

Madras,
14-5-26.

To

THE EDITOR,

"The Educational Review,"
Madras.

SIR,

While thanking you for the very kind and sympathetic review of my book—*A History of India in Tamil, Part II*, published by Messrs. Macmillan & Co., Ltd.—which appears on p. 273 in the April number of your Journal, I may be permitted to point out that, apart from the limitations imposed upon the writers of text-books by syllabuses prescribed by the Department, and the difficulty of putting in the latest theories on thorny subjects like the original homes of the Aryan race, etc., I have, in my humble way, pointed out the following in my book:—

- (1) The pre-Dravidian stocks and their progress (pp. 9 and 10); (2) the Dravidians and the theory which puts forward Western Asia as their probable original habitat (p. 11); and (3) the probable original home of the Aryans (p. 13).

Besides, I have always attempted to put forward, as far as possible, the latest conclusions on disputed points arrived at by scholars. Thus I have given the recent view as to the origin of the name of the Bahmani Dynasty, and the nature and significance of the Maratha rule. I request you will kindly publish this.

I remain,

Sir,

Yours sincerely,
C. S. SRINIVASACHARI.

A CORRECTION.

SIR,

I shall feel thankful for your kindly allowing me to invite attention to a mistake I have made in the course of my Presidential Address delivered at the recent Bihar and Orissa Secondary Education Conference and printed in the April number of your Review. The statistics I have given on page 226 with regard to the percentage of pupils attending schools are in relation to the total population of the province and not school-going population which of course is counted as 15% of the total.

P. SESHADRI,

President, Bihar and Orissa
Secondary Education Conference.

We are asked to publish the following:—

"THE PROGRESS OF EDUCATION,"

Kibe Wada, Budhwar Peth,
Poona City, 1st June 1926.

SIR,

You are probably aware that the Aryabhushan Press, at which the *Progress of Education* is printed, disastrously suffered from fire on Tuesday, 25th May, 1926. The May issue of the magazine was ready to be despatched to the subscribers when the fire broke out and all the copies were either burnt or spoiled. You will, therefore, excuse our inability to send out the May issue to our subscribers. Further we have not yet settled what arrangements are to be made in regard to the publication of future issues. We shall, however, do everything possible to continue the publication of the journal uninterrupted.

We hope our subscribers and sympathisers will not mind the delay and inconvenience caused by circumstances over which we could have little control.

Yours truly,
M. R. PARANJPE,
for Editors.

Reviews and Notices.

CONFIDENTIAL TALKS TO YOUNG MEN, BY PROF. SATYAVRATA SIDDHANTALANKAR. (PUBLISHED BY THE SHARMA TRADING CO., CARNAC ROAD, BOMBAY). Price Rs. 3.

This is an excellent work by Pandit Satyavrata, containing most valuable information on the subject of Brahmacharya and sexual life; and the author has spared no pains and observed no false delicacy to bring home to the mind of the reader the appalling consequences and the tragic end of an immoral life. The book has a valuable foreword by Swami Shraddhanand, who rightly says that it is only in recent times that the scientific medical scholars of Europe and America have begun to realise that sexual purity is the pivot on which individual and national character can be built, thereby reviving the Brahmachari virtues of our ancient famous Gurukula life. The book is pregnant with valuable and apt quotations from eminent medical authors of unquestioned authority, on subjects relating to sexual life.

The work is divided into twelve chapters, chief of them being "A Word on Sexual Secrecy," "Reproduction and Organs of Reproduction," "Puberty, Adolescence and Virility," "Sexual Hygiene," "Importance of Brahmachari" and "The Wisdom of the Rishis."

Under the Chapter of Sexual Hygiene, the author gives a wealth of information on the abuse of sexual life, its cause and cure. An eminent medical writer says that in his opinion neither the plague, nor war, nor small-pox, nor similar diseases have produced results so disastrous to humanity as the pernicious habit of onanism; it is the destroying element of civilised societies which is constantly in action and gradually undermines the health of a nation. Says another writer: "The pernicious and debasing practice of masturbation is a more common and extensive evil with youths of both sexes than is usually supposed." The author of the book under review has devoted

special attention to this sad phase of moral evil and has suggested ways to root it out.

On the subject of Brahmacharya, the author says that the Yogis of yore were conversant with certain Yogic practices by which the external secretions, which could give life to a new being, was capable of being reabsorbed into the blood, and thereby revivify the system. Such souls were called ऊर्ध्वरेतस or Aditya Brahmacharis, who lived a life of celibacy up till forty-eight years. If young men will understand the importance of the internal secretion of the testes into the system in the building of manhood, they will think twice before they fall a victim to the emasculating vices of self-abuse, etc. The author further says that the flow of external secretion cannot but harm the internal secretion by exhausting the sexual glands and thereby minimise man acquiring full divine stature in look, life, and appearance, which as a strict Brahmachari he can acquire without fail. A life of a pure Brahmachari will enable man to easily acquire divine looks and powers by reabsorbing the semen into the blood and enriching the brain power. Next to being an out and out Brahmachari, the author recommends a chaste married life with sexual union at long intervals, at a period when the female is also anxious to have the orgasm, without the male ever having to force his love upon and exact the affection out of his wife. Such a life according to the author will ensure lasting health and happiness to the married couple as well as the progeny of their affection.

The author has done an immense service to mankind by bringing out this book in the form of confidential talks addressed to the English knowing portion of the student community.

VIRGINIBUS PUBESCENTIBUS AND OTHER PAPERS, BY ROBERT LOUIS STEVENSON, WITH INTRODUCTION AND NOTES, BY J. H. FOWLER. (MACMILLAN & CO.) Pp. xvi & 182. Price 1s. 9d.

This is a welcome addition to the very useful 'English Literature Series' under the able editorship of Mr. J. H. Fowler. To the general reader

as to the student in schools and colleges, this edition of Stevenson's well-known essays will be found very attractive. Though we may brush aside the theory of 'playing the sedulous ape' in the matter of attaining a good literary style, the personal charm of the essays in the present volume should offer no small stimulus to the reader who will cultivate a useful sense of good prose.

ST. FRANCIS OF ASSISI, BY E. M. WILMOT-BUXTON, F. R. H. S., WITH NINE ILLUSTRATIONS (G. G. HARRAP & Co.) Pp. 191.

This book belongs to a series, "Heroes of All Time," intended obviously for youthful readers. A variety of heroes, poets, statesmen, warriors and prophets are included in the series. The instinct for hero-worship in young people is no doubt a strong impulse which should be utilised fully in developing their character. More than the lives of generals, statesmen and poets, the lives of prophets and saints, of the real kind, deserve intimate study. The present volume which gives the story of the great Christian saint who lived in the latter part of the 12th and the early part of the 13th centuries, will serve to profit readers of all nations, religions and ages. The ideal of complete self-abnegation which is a feature of the Roman Catholic religious orders makes a special appeal to people in India. The ideal of social service which underlies the organisation of Christian religious orders should be of special edification in India. Beyond a succinct account of the saint's life we have two chapters at the end of the book, "A Pilgrimage to Assisi" and "The Grey Friars" which will be read with interest.

STORIES FROM SHAKESPEARE, RETOLD BY H. G. WYATT. (OXFORD UNIVERSITY PRESS.) Pp. 127. Rs. 1 4 as.

This is an attempt to re-tell eight of Shakespeare's stories for school-children in India, in simpler language than Lamb uses.

A TREASURY OF VERSE, POEMS OF TO-DAY AND YESTERDAY, SELECTED AND ARRANGED BY A. G. EDGAR AND ERIC CHILMAN. (G. G. HARRAP & Co.) Pp. 194. Price 2s. 6d.

We are bewildered by the flood of poetic selections issuing in these days. The present editors do not unfortunately prefix any preface to explain the special features of their work. The book is divided into two parts. It is difficult to characterise the quality of the two sections. Probably the first section is lighter in feeling and thought and leads up to the second. It is easy to see many attractive 'Poems of to-day' in the present selection, while at the same time there are innumerable old pieces, favourites of our older anthologies. The pieces present a variety of poetic feeling and thought. There are beautiful lyrics, lively narratives of the ballad spirit, and agreeable moralisings. Among the living poets are represented Binyon, Bridges, Drinkwater, Hardy, Kipling, Walter de la Mare, Masfield, Newbolt, Noyes and Yeats. We have no doubt that this collection will be found very attractive and useful to all youthful readers and older readers will also find it worth buying for the bits of modern poetry contained in it.

THE LURE OF THE SEA, SEA LORE OF TO-DAY AND YESTERDAY, SELECTED BY F. H. LEE. (G. G. HARRAP & Co.) Pp. 276. Price 2s. 6d.

This is a delightful collection belonging to 'Harrap's Modern English Series' of which the book reviewed above is also one. The selections are both in prose and in poetry. The lure of the sea has had no small influence over the best of the creative minds in English literature, and the literature that smacks of the sea is extraordinarily stimulating. The present volume is pleasant reading to lovers of the sea, to others it is a new stimulus. The way in which contemporary writers have responded to the call of the sea, more than writers of earlier times, is most striking. Masfield, Bridges, Noyes, Conrad, Jacobs, Newbolt and Kipling adorn the present volume, in addition to Dickens, Long-

fellow, Mark Twain, Tennyson, Hood and Macaulay.

A SHORT HISTORY OF ENGLISH LITERATURE, BY EDWARD ALBERT. (G. G. HARRAP & Co.) Pp. 224. Price 2s. 6d.

This little handbook of literature has its special features. There are two preliminary chapters to explain literary form and style. Short poetical extracts are made frequently to illustrate the qualities of writers. Everywhere there is an attempt to offer clear analyses of authors, and periods, we hope they will not be felt to be too clear! The judgments passed on authors are strikingly appropriate, considering the brevity in which they are expressed. There are three appendices, offering 'a tabulated summary' and notes on 'Scansion' and 'Figures of speech.'

HINTS ON NOTEMAKING IN ENGLISH SUBJECTS, BY D. C. SOMERVELL. (BELL & SONS). Pp. 55. Price 1s. 6d.

This little book sets forth hints with the help of concrete illustrations, on the best ways of making notes to help the memory. The book may be found useful in schools as a practical guide.

THE ANNALS OF THE BHANDARKAR INSTITUTE, 1926-27. VOL. VIII, PART I, pp. 147.

This number, though lacking in the usual sections of reviews and book-notices, is rich in articles of varied interest bearing on all aspects of ancient Hindu culture. Mr. Bapat examines the different strata in the literary material of the *Digha-Nikāya*, the second volume of which shows a development in the theory of the Buddhas, with the famous *Mahāparinibbāna Sutta* being the result of gradual agglutinations. The three volumes appear to be differentiated from one another by the subject-matter in each of them and by the manner and method of presentation. Mr. C. R. Devadhar continues his study of the authenticity and value

of Bhasa's plays: and he concludes with the estimate, that Bhasa, though lacking the grace, imagination and wit of Kalidasa, the power and depth of Bhavabhūti, or the humour, skill and world-wide sympathy of Sudraka, has nevertheless proved himself a tolerable artist, with a simple and direct style which is not however wholly free from the artificialities of the classical play.

Mr. H. C. Chakladar finishes his study of the geography of Vatsyāyana, who, he concludes from an analysis of the available evidence, was a native of Western India intimately familiar with the Vedic School of the Apastambins and having no personal knowledge of the central and eastern portions of Northern India. Then follows an article containing some acute observations on Hemachandra's *Dśināmāla* edited by Pischel, which is very valuable for the student of literary Prakrits. The article gives some observations on the Dśi lexicons preceding this work, which form its base. Mr. J. N. C. Ganguly in discussing the Hindu Theories of Punishment explains it to be the operation of *Danda* whenever and wherever it is needed as retribution, restraint and reformation; and it is thus a logical corollary of the doctrine of *Danda*, being the measure of its actions. The survey ranges from Vedic times to those of Sukra and even later and includes the Brahminical privilege of exemption.

The Dharma-Sutra of Shanka Likhita is continued, and it is followed by an interesting contribution of Professor D. R. Bhandarkar on the question of the Pārasika settlement in the Thana District. The Pārasika mentioned in the Chalukya records were not a mere set of refugees but formed a settled State, lasting for about 200 years from about 650 A.D. to the time of Amoghavarsha.

The two miscellaneous notes of the number refer to an inscribed hymn to Sarasvati found at Mandu and to the Jain teacher of the 9th century, Mahāvīracharya by name, who was a mathematical celebrity coming midway between Brahmagupta and Bhaskaracharya, but who, unlike Hindu mathematicians was not primarily an astronomer.

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The Educational Review.

Among the petty persecutions to which members of the teaching profession are subject is the desire on the part of members of the management of educational institutions to see that they do not rise into any prominence in public life. It pleases the members of managing committees to feel that the teachers are their subordinates and do not occupy any positions of prominence above them. It is unfortunate that such a spirit should extend even to Universities, and the Allahabad University should be giving trouble to one of its Professors, Dr. Shafaat Ahmad Khan, D.Litt., M.L.C., who has been a member of the Legislative Council of the United Provinces for some time. He has been a very active member of the Council and nobody has suggested that his work as Professor of History at the University has suffered as a consequence. The University Executive Council has however been subjecting him to pin-pricks and has laid down restrictions of all kinds with regard to his attendance at the Council. A senior Professor of the standing of Dr. Shafaat Ahmad Khan, engaged mainly in research-work, may be expected to know his duties and make sufficient compensation for any inconvenience caused to his students by his occasional absence from the University to attend meetings of the Legislative Council. But in granting permission to contest a seat in the Legislative Council at the ensuing elections, the University has said that he will not be given per-

mission again and he should be subject to the old restrictions with regard to attendance. We wish the University Council realised that a University gains much in prestige and influence by one of its members of the staff being on the Legislative Council. Speaking from the larger interests of the country also, it seems undesirable to deprive the legislatures of the country of the services of members of one of the most distinguished professions in the world. Professors should be encouraged to find wide scope for their talents and realise their ambitions in public life, even at some little sacrifice to the institutions concerned.

Every facility for higher education in new directions which is opened in the country must be welcomed, as it will lead to a gradual elimination of the need for students to go to England and other foreign countries for higher training. Following in the wake of the proposals for expanding the work of the Forest Research Institute at Dehra Dun so as to provide for advanced training in Forestry in India itself, there is the welcome announcement of the inauguration from the 1st November of this year of a School of Mines in Dhanbad. The school will provide high grade instruction in mining engineering and geology and will be open to all students from India and Burma. It will award certificates in coal mining, metalliferous mining and geology on the satisfactory completion of a three years' course and the Diploma of Associateship in Mining Engineering and

Geology after a further year's course. The institution is to be a residential one and the Government is also to provide attractive scholarships for students who wish to join the institution. Students who have passed the Intermediate or an equivalent examination are to be admitted on the results of a competitive examination to be held for the purpose. In British India as well as in several of the Indian States, there is a lot of mineral wealth awaiting exploration, and it is hoped the institution will be the means of turning out a number of efficient young men who will be able to play a useful part in the development of the resources of the land. A prospectus of the school giving detailed information relating to admission and other rules will soon be placed on sale at the Government of India Central Publication Branch, 8, Hastings Street, Calcutta, and at the office of the Principal of the School.

The Rev. Dr. Meston has done a very useful piece of public service in delivering a series of lectures examining the present educational policy of the Government of Madras and pointing out its shortcomings in many directions. It is true a sum of two crores of rupees is being spent on education in India from public funds, but as Dr. Meston pointed out, the expenditure is small in comparison with the civilised countries of the West. Scotland has a population of only five million inhabitants, but the amount spent on education is over six million pounds as against 1½ million pounds in

India. "If more money was spent on education," said Dr. Meston, "less money may be spent on jails." Dr. Meston also complained that the progress of elementary education which must really be the foundation of the educational system was not sufficiently rapid. He was also anxious that the crore of rupees spent on elementary education should be spent in the best manner possible ensuring the following conditions: (1) an inspectorate able to attend to this stage of education; (2) an adequate system of training; (3) an equitable distribution of expenditure. There are at present 40,000 Elementary schools in the Madras Presidency, but the subordinate inspectorate numbers less than 400, giving a hundred schools for each inspecting officer. Of the 60,000 teachers employed in Elementary schools, nearly half the number is untrained. Dr. Meston also complained of want of equitable distribution of the expenditure and pleaded for a revision of the present rules.

Communalism in education is productive of more than one kind of evil. The Non-Brahmins in Southern India have not yet begun to ask for separate educational institutions for themselves, but it is an old demand with Muhammadans all over India. Two recent instances deserve mention. There has been a demand for a separate Islamia College in Calcutta, and though Government has blessed the scheme, the University of Calcutta has expressed its opinion in no uncertain voice that it is

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not desirable to start a college only for one community. Even in normal circumstances, much could be said against the starting of communal educational institutions, but in the present state of communal tension in Bengal, it seems extremely undesirable to encourage such separatist tendencies in education. Another instance occurs nearer home. There was a clamour for a separate college for Mussalmans in Madras and Government took the trouble of raising the Madrasa-i-Azam to the status of a college, first up to the Intermediate standard and later up to the B. A. degree. Students however have not come forward to take advantage of the increased facilities. Government therefore intends to reduce the status of the institution to the second grade. Indignant protest meetings have been held and the members of the community want that the poor taxpayer's money must be continued to be spent whether students come forward to read in the college or not!

In the course of a series of articles which Mr. Aldous Huxley has been contributing to the *Nation* and the *Athenæum*, there are some interesting observations on the serious condition of the state of unemployment of the educated middle classes to-day in India. Though the remarks are made with special reference to Kashmir and North India, they have a bearing on conditions in Southern India as well, and deserve the serious consideration of everybody:

There are many Pandits in Kashmir. They are all educated more or less, and all equally proud. The consequence is that, in Kashmir, you can hire a clerk for about half as much as you would have to pay your cook. And not in Kashmir only. It is the same throughout the whole of India. A circus recently visited Lahore. The management advertised for gatekeepers at fifteen rupees a month. Among the applicants, I was told, were upwards of forty graduates. Mysore, the best-governed of the Indian States, finds the same difficulty in disposing of the finished products of its higher education. After having gone to the trouble of taking their degrees, the graduates of its colleges demand, almost as a right (it is only natural), the work for which their educational attainments fit them. But the work does not exist.

That is the farcical tragedy of Indian education. The Universities produce a swarm of graduates, for whom there is nothing to do. The State can employ only a limited number of them, and, outside the Government service, there is almost no opening for a man with the ordinary general education of the West. The industrial and commercial activities, to which most of our educated young men devote themselves, hardly exist in India. There is no available liquid capital to start such industries on a large scale, and the average educated Indian lacks the enterprise and energy to begin in a small way on his own. His ambition is to step into some safe clerical job with no responsibilities and a pension at the end of it. A "crammed" education in the humanities or in pure science hardly fits him for anything else. Unhappily, the number of safe clerkships with pensions attached is strictly limited. The Indian youth steps out of the University examination hall into a vacuum. The class of educated unemployed—the class most dangerous to an established Government—steadily grows.

It is true that there have been some resolutions moved on the subject in our Councils, but it must be said that it has not yet received from the community the attention that it deserves. We are however glad to hear that at least the Madras Government has moved in the matter and the committee of enquiry appointed to consider the matter is busy with the preparation of the report which will be awaited with much interest.

The Adult Education Committee of the Board of Education has just issued a report on the place of the Drama in Education. If the report is somewhat inconclusive with regard to details, the committee has no hesitation in expressing its confidence in the educative value of the drama. The committee declares that the "conditions under which drama is presented are a matter of the greatest interest to all concerned in education," and believes that "drama under right conditions can be a most potent instrument of moral, artistic and intellectual degradation." The committee records many valuable instances testifying to the real appeal made on the masses by high-class drama pertaining to the literature of England as well as to the classics. Even villagers have sometimes felt interested in translations of Euripides, Sophocles and Æschylus, and there is no reason why with proper and adequate facilities, there may not be a spread of the correct principles of art and taste among the masses. Conditions are of course very primitive in India, but at least a few big

Corporations and Municipalities should attempt to run theatres for the benefit of the man in the street. They will be able to introduce some cheerfulness into the dreary lives of the labourer who will otherwise probably turn to liquor for consolation.

The Theosophists have a way of starting institutions with grandiloquent names which do not end in anything very substantial. Some years back, there was the "National University" started at Adyar, which was wound up with the quickness with which it was started, and the institutions concerned have come back to the fold of the Madras University, sadder but wiser by the experience. Their latest stunt is the announcement to start an *International Fellowship of Teachers*, the members of which have to make the following declaration before admission—we extract them as they contain useful principles, though we may remind the organisation that there is already a World-Federation of Teachers' Associations which has held two Conferences and which is to hold the third session next year and there is no need to start another:

I believe that my duty as a teacher is to help the spirit of my pupils to gain ever-increasing control over the bodies through which they work; I believe that my duty as a teacher is to surround my pupils with such freedom as shall help the spirit within to achieve its fullest self-expression, ever remembering that the desires of the bodies are not

always the needs of the spirit, and that I must never impose upon my pupils the characteristics of my own self-expression.

I believe that my duty as a teacher is to try to discover the ideals and truths of the new world in which my pupils will live in their maturity, so that I may make my school a miniature new world in which they shall begin early to recognise the ideals and truths, and practise the duties of the age to which they belong.

I believe that my duty as a teacher is to be an example to my pupils, of joy, and to keep away from them all fear, so that being happy they may learn to radiate happiness around them.

I believe that my duty as a teacher is to be an example to my pupils of love so that in them love may grow.

I believe that my duty as a teacher is to be an example to my pupils of purity of body, feelings and thoughts so that in them a love of purity of body, feelings and thoughts may grow.

I believe that my duty as a teacher is to be an example to my pupils of fearlessness so that in them a love of courage may grow.

I believe that my duty as a teacher is to be an example to my pupils of wisdom so that in them a love of wisdom may grow.

I believe that my duty as a teacher is to be an example to my pupils of patience, perseverance and understanding, so that in them patience, perseverance and understanding may grow.

I believe that my duty as a teacher is to be an example to my pupils of reverence towards elders, affection towards equals, tenderness towards those younger than myself, in mind or years, or evolution, so that they in turn may

be reverent towards elders, affectionate towards equals, tender to the young.

I believe that my duty as a teacher is to be an example to my pupils of the good citizen, both of my country and of the world, so that they may grow into good citizenship.

I believe that my duty as a teacher is to surround my pupils with the beautiful, so that they may learn to appreciate and demand the beautiful.

I believe that my duty as a teacher is to be an example to my pupils of justice and truth, so that in them a love of justice and truth may grow.

Following in the wake of the Telugus and the Tamils and the Malayalis, the Canarese have begun to make a demand for a separate University. It is true there is the Mysore University which may be looked upon as a Karnataka University, particularly in view of the fact that recent changes in the institution have been tending in the direction of showing more attention to the language of the people. But it is in an Indian State and cannot be expected to cater to areas lying outside, and it is also too far from the centre of the Karnataka country. The Canarese districts in the Madras Presidency and those situated in the Southern Mahratta country have a natural craving to come together, and at the recent Conference held at Bellary, an articulate demand has been made for such an institution. The Canarese people of the Southern Mahratta country with Dharwar as their headquarters have not been able to compete with the astute

Mahrattas from the North, and the people of South Canara have also a feeling that they are too far from the centre of things in the Madras Presidency. Much financial or even public support has not yet been forthcoming for the scheme, but the time is probably not far distant when the idea will materialise and the Karnataka country will have a University of its own.

With the 'provincialisation' of education, the Government of India have been more or less abdicating their responsibility in educational matters. It is somewhat unfortunate as education is really such an important subject of national concern that the Central Government cannot wash its hands entirely of all connection with it. One more step has just been

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the Imperial
Government.

taken in the direction of throwing the entire burden on Provincial Governments by the recent announcement that the sanction of the Government of India will not hereafter be required even for the creation of new Universities and the passing of the necessary legislation for the purpose. We are not sure if this is a wise decision. The establishment of a new University is a sufficiently serious matter to require the attention of the Government of India. There is already a tendency in various parts of India to start cheap and inefficient Universities, and this decision will only encourage it. Action has already been taken in the matter by the Government of India in one instance, by returning the draft of the proposed Agra University Bill to the Government of the United Provinces without submitting it to any formal sanction.

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The book surveys the more important problems connected with the study of child-nature. It deals with the stage of child development, with the processes of sense-perception, with play, hand-work, and fatigue, with exceptional children, both sub-normal and supra-normal, with measurements of intelligence, and with the application of the Kindergarten system to the Indian system. It is one of the books which the Academic Council on the recommendation of the Board of Studies in Teaching has declared as suitable for candidates for the L. T. degree. We hope that it may have a wide circulation as its influence is sure to be for good.

Education (Allahabad), March 1925.

The distinguished author of the book under review is one of the few enthusiasts in India who have taken to a systematic study of child-nature. The book embodies the results of close study by the author, not merely of the existing literature on the subject, but of the actual mental and physical growths of children, as witnessed by her in several schools in Britain and India where she has had the opportunity to work. Within a brief space of 200 pages, the author has contrived, in her plain, matter of fact, and at the same time, engaging style, to elucidate the various topics connected with child life such as the sense perception, play, the service of hand in Mental Development, fatigue, exceptional children, measurement of intelligence and the Kindergarten system; touching the various theories on these topics and supplementing them by her own views based on personal study and investigation. We would especially commend to our readers the beautiful and inspiring chapter on the Kindergarten system in which without going into technical detail, the author has surveyed the basic principles of the system and pleaded in accordance with these principles for the Indianisation of Indian education. We are sure that this little book will prove an excellent handbook for teachers as well as parents and others interested in the subject and kindle in them a deeper interest therein. It has been already recommended by the Academic Council of the Madras University as a suitable text-book for the students appearing for the L. T. Examination and we hope that other Universities will soon follow suit. We congratulate both the author and the publishers on this valuable publication and recommend every teacher to secure a copy thereof.

XXII—4

The Madras Christian College Magazine, January 1926.

The study of child-nature is exceedingly important for both of the sciences of Psychology and Education. Its importance for Psychology is from the genetic point of view. In the child one is able to observe in simpler forms many of the processes at work which in adult experience become so complex as to make them difficult of analysis. Its importance for Education is too obvious to need extended notice, and yet there are some who are so short-sighted as to neglect it. Here in South India there are a great number of schools in charge of teachers who do not know the elementary facts about child-nature. But with the progress of education the time will surely come when it will be considered as dangerous to employ a teacher who is ignorant of child-nature as it is to employ a man for a physician who knows nothing of anatomy and physiology. Such a book as that which Miss Gordon has written will serve a useful purpose in hastening that day by putting teachers in possession of a primer which contains the fundamentals of the subject in a readable style. It is the type of book which we would like to see translated into our South Indian vernacular, because it not only includes the principles of the science, but states them with special reference to the needs of Indian teachers.

A personality is the outcome of forces which are both hereditary and environmental so that child study must take account of both sets of factors. Much more is to be gained by teachers through the study of children for themselves than the mere perusal of books on the subject, however authoritative they may be. The trouble with so many students of other things as well as of child-nature is the evident desire to be spoon-fed. They desire to get their information at second-hand rather than take the trouble to study for themselves. In many instances teachers have not the technique necessary to observe intelligently. Very valuable, then, is Miss Gordon's chapter on 'How to Study a Child,' particularly for those who are beginners in child study, and it is a matter of vital concern as much for the parent as for the teacher.

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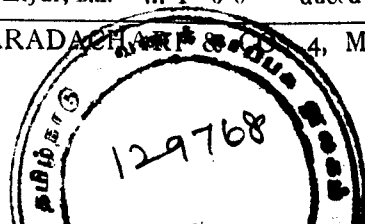
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